FM-AM STEREO TUNER AMPLIFIER

RX-53

SERVICE MANUAL

KENWOOD

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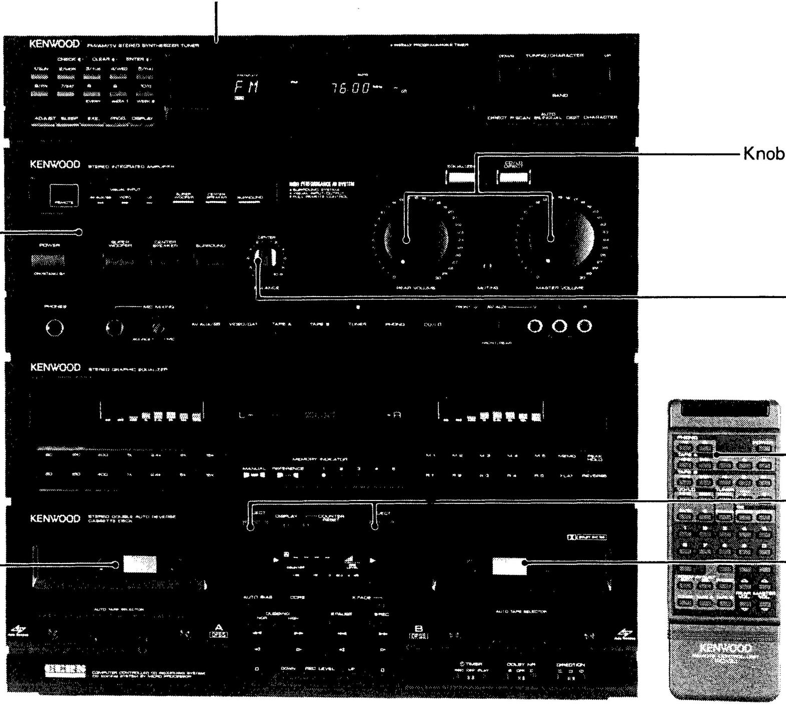
B51-3970-00(C)392



Metallic cabinet (A01-1787-01)

Knob (VOLUME) (K29-3739-04)

Panel ass'y (A20-5856-01)

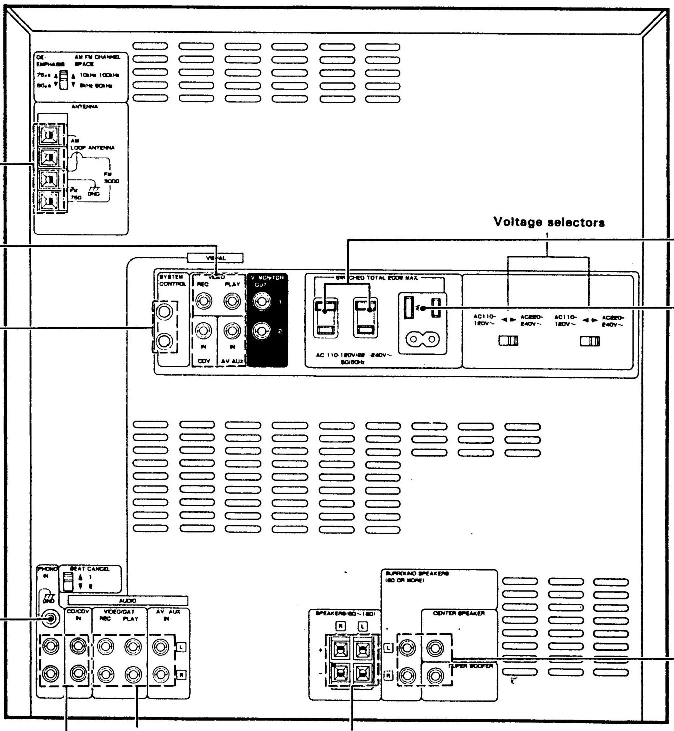
Knob (BALANCE) (K29-3740-04)

Remote controller ass'y (A70-0301-05)

Knob (EJECT) (K29-3737-04)

Cassette lid (A) (A53-1142-02)

Cassette lid (B) (A53-1144-02)



Lock terminal board (ANTENNA) (E20-0476-05)

Voltage selectors

AC outlet (E03-0095-05)

Phono jack (VISUAL) (E13-0635-05)

Inlet with AC outlet (E03-0100-05)

Miniature phone jack (SYSTEM CONTROL) (E11-0188-05)

Binding post (GND) (N08-0128-35)

Phono jack (SURROUND) (E13-0479-05)

Phono jack (phono, CD/LD) (E13-0634-05)

Phono jack (VIDEO/DAT, AVAUX/BS) (E13-0446-05)

Lock terminal board (SPEAKERS) (E20-0475-05)

Contents

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DISASSEMBLY FOR REPAIR

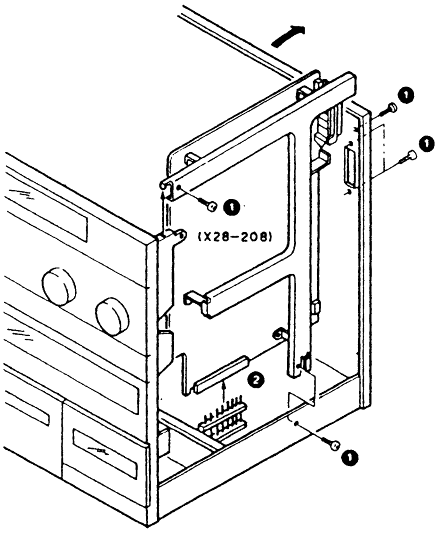
* After removing the case, perform disassembly for repair as follows:
Without the front panel detached, electrical operation check is feasible as to, from above, the X14-269 (A/4) (tuner, amplifier display board), the X11 (graphic equalizer board), the X28 (tuner, cassette board) and the X09 (main board).

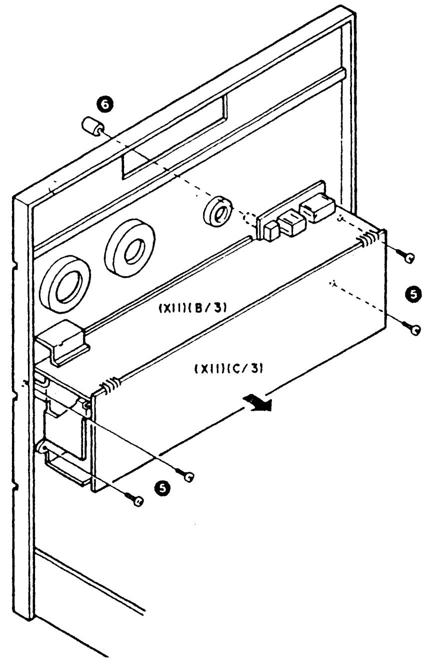
(1) Disconnecting the X14

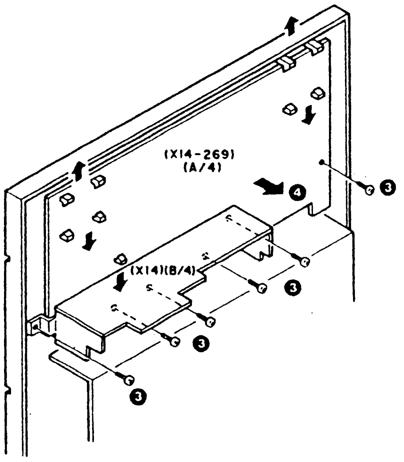
1. Remove the five screws (❶) of the X28-208.
2. Putting down the rear panel rearward, disconnect the board from the connector . . . (❷).
3. Remove the six screws (❸) of the X14-269 (A/4).
4. Undo the nine catches and disconnect the board.

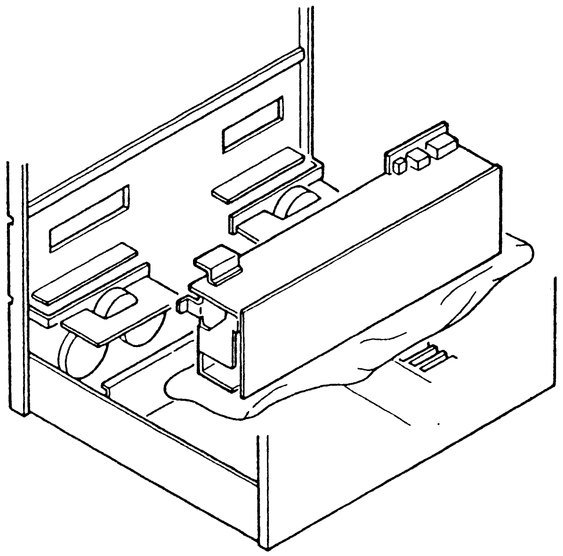
(2) Disconnecting the X11

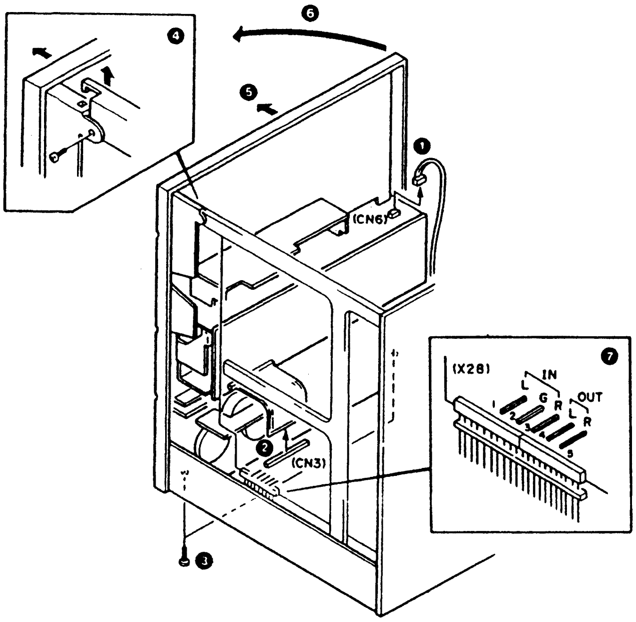
1. Remove the four screws (❺).
2. Detach the microphone mixing knob (❻) and disconnect the X11 ass'y altogether.
3. Install the X28-208 to its original location, and lay over a sheet of cloth under the heat sink to perform the electrical operation check of the FL side of the X11 board.







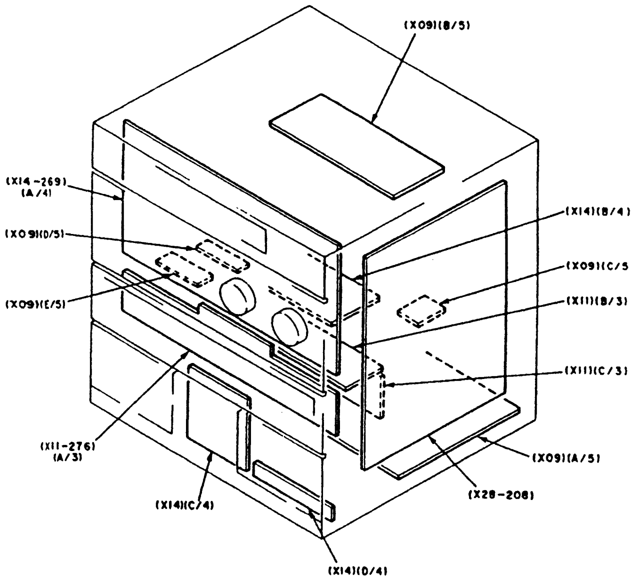



❹
❻
❺
❶
(CN6)
❷
(CN3)
❸
❼
(X28)
IN
L
G
R
OUT
L
R
1
2
3
4
5

* After removing the case, for the operation check of the mechanism rear portion and the X11 (C/3) (cassette display board), perform the following procedure:

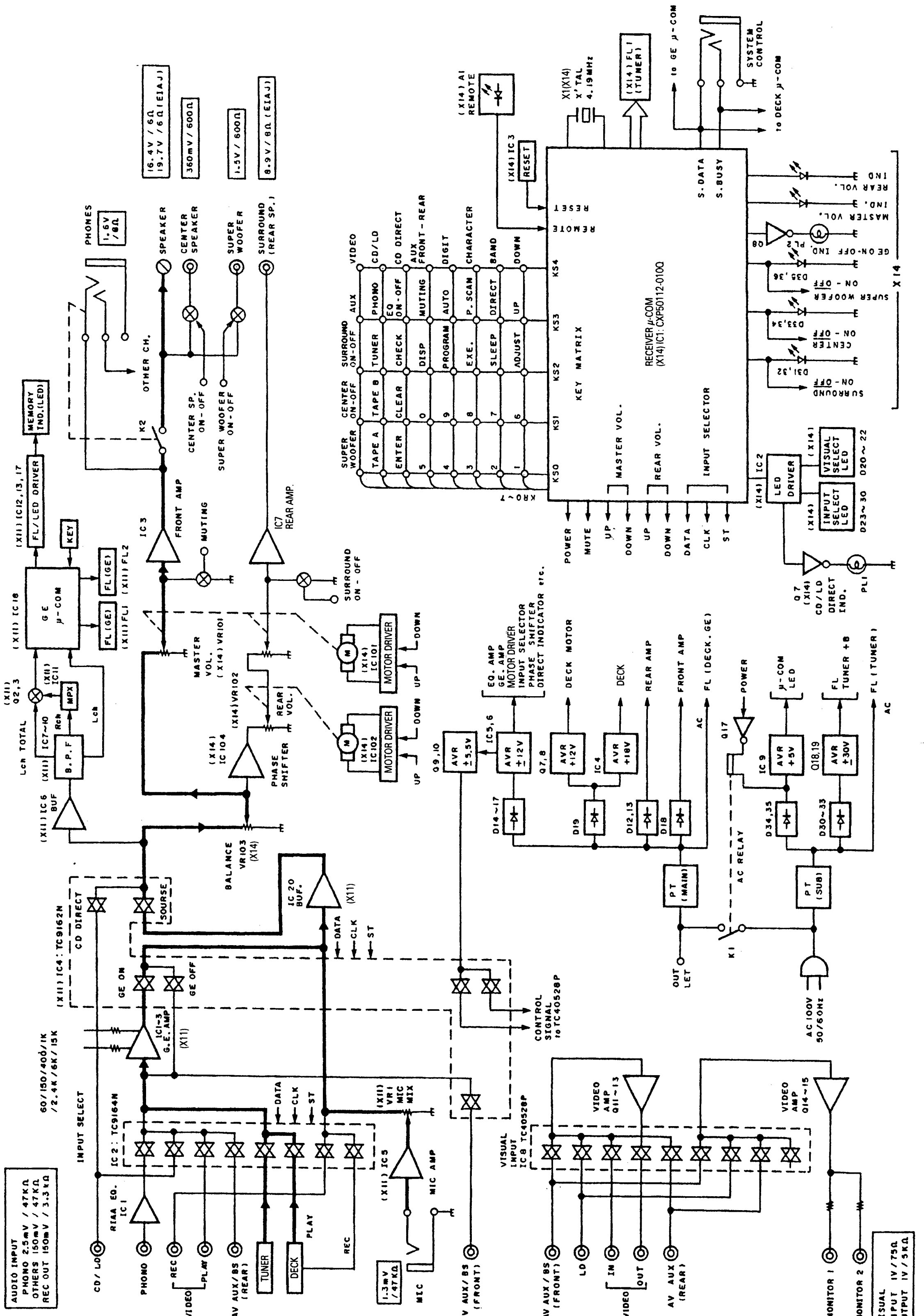
(1)

1. Disconnect the connector CN6 . . . (❶).
2. Disconnect the 40-pin flexible cable from the connector CN3 . . . (❷).
3. Remove the two screws (❸) in the lower portion of the front panel.
4. Remove the one screw in the upper portion of the X28 and undo the catch as shown on the right . . . (❹).
5. Take out the front panel slightly forwards . . . (❺), and open its left side to more than 45° . . . (❻).
6. In this situation, the I/O signals of the cassette deck are possible through those pins in the lower portion of the X28 . . . (❼).


(X09)(B/5)
(X14-269)
(A/4)
(X09)(D/5)
(X09)(E/5)
(X14)(B/4)
(X09)(C/5)
(X11)(B/3)
(X11)(C/3)
(X11-276)
(A/3)
(X14)(C/4)
(X28-208)
(X09)(A/5)
(X14)(D/4)

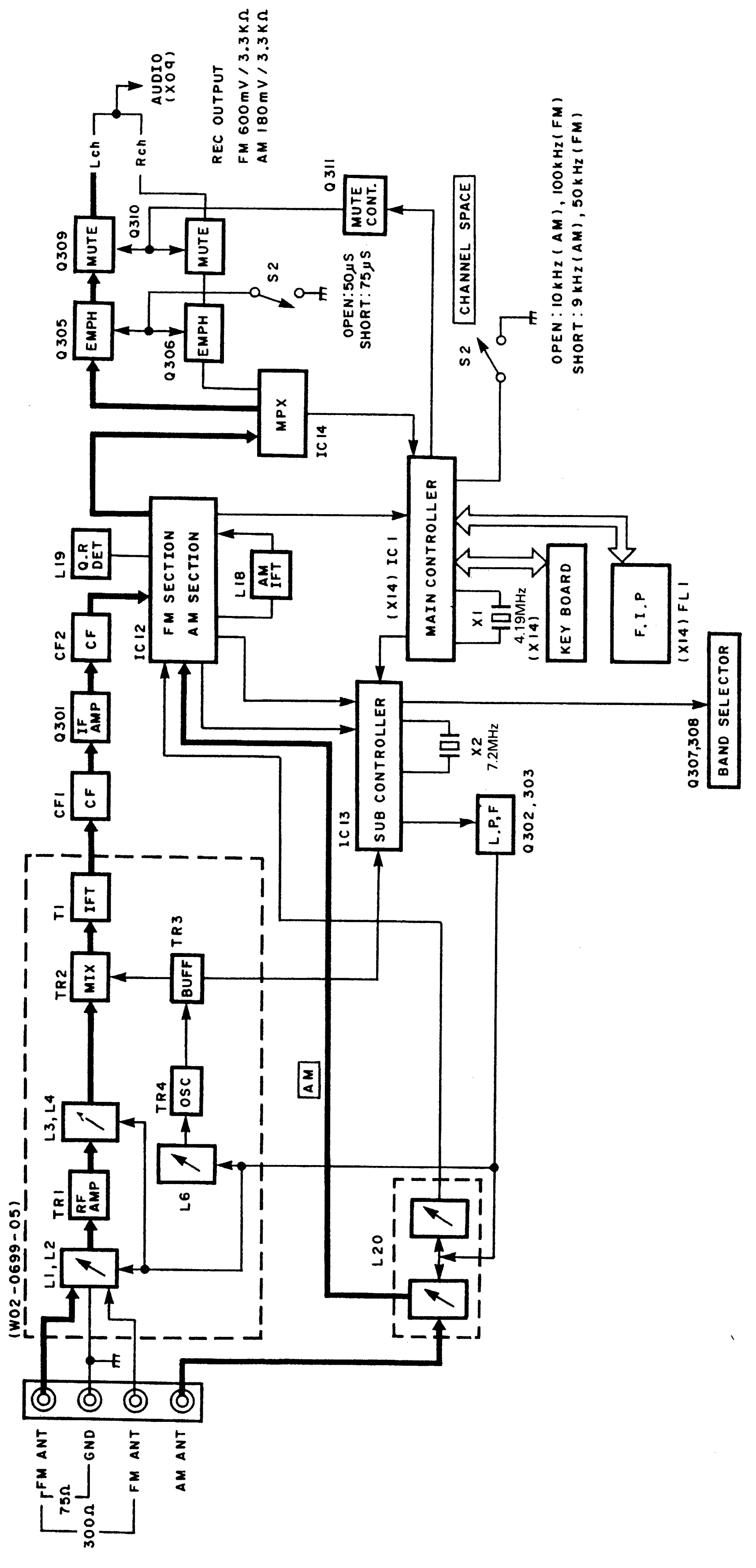
BLOCK DIAGRAM

Audio unit (X09)


AUDIO INPUT
PHONO 2.5mV / 47KΩ
OTHERS 150mV / 47KΩ
REC OUT 150mV / 3.3KΩ
CD/LD
PHONO
VIDEO
REC
PLAY
AV AUX/BS (REAR)
TUNER
DECK
PLAY
REC
1.3mV / 47KΩ
MIC
AV AUX/BS (FRONT)
AUDIO INPUT
RIAA EQ. IC1
INPUT SELECT
IC2 : TC9164N
DATA
CLK
ST
(XII) IC5
MIC AMP
(XII) VR1 MIC MIX
60/150/400/1K /2.4K/6K/15K
IC1~3 G.E. AMP
(X11)
GE ON
GE OFF
(XII) IC4 : TC9162N
CD DIRECT
SOURSE
IC 20 BUF.
(X11)
BALANCE VR103 (X14)
(XII) IC6 BUF
(XII) B.P.F
(XII) IC7~10
Lch TOTAL
Rch
Lch
(XII) Q2,3
(XII) IC11
MPX
(XII) IC16
GE μ-COM
(XII) FL1
FL (GE)
(XII) FL2
KEY
(XII) IC12,13,17
FL/LED DRIVER
MEMORY IND.(LED)
(X14) IC104
PHASE SHIFTER
(X14) VR102
REAR VOL.
MASTER VOL. (X14) VR101
IC3
FRONT AMP
MUTING
IC7 REAR AMP.
SURROUND ON-OFF
K2
OTHER CH.
PHONES
1.6V / 8Ω
SPEAKER
CENTER SPEAKER
SUPER WOOFER
SURROUND (REAR SP.)
CENTER SP. ON-OFF
SUPER WOOFER ON-OFF
16.4V / 6Ω
19.7V / 6Ω (EIAJ)
360mV / 600Ω
1.5V / 600Ω
8.9V / 8Ω (EIAJ)
(X14) IC101
MOTOR DRIVER
(X14) IC102
MOTOR DRIVER
UP
DOWN
M
SUPER WOOFER
CENTER WOOFER
SURROUND ON-OFF
CENTER ON-OFF
AUX
VIDEO
TAPE A
TAPE B
TUNER
PHONO
CD/LD
ENTER
CLEAR
CHECK
EQ ON-OFF
CD DIRECT
5
0
DISP
MUTING
AUX FRONT-REAR
4
9
PROGRAM
AUTO
DIGIT
3
8
EXE.
P. SCAN
CHARACTER
2
7
SLEEP
DIRECT
BAND
1
6
ADJUST
UP
DOWN
KRO~7
KS0
KS1
KS2
KS3
KS4
KEY MATRIX
RECEIVER μ-COM
(X14) IC1: CXP50112-0100
MASTER VOL.
REAR VOL.
INPUT SELECTOR
POWER
MUTE
UP
DOWN
UP
DOWN
DATA
CLK
ST
REMOTE
RESET
(X14) IC3
RESET
(X14) A1
REMOTE
X1(X14)
X'TAL
4.19MHz
(X14) FL1 (TUNER)
to GE μ-COM
SYSTEM CONTROL
to DECK μ-COM
S.DATA
S.BUSY
IND.
REAR VOL.
IND.
MASTER VOL.
GE ON-OFF IND.
PL2
Q8
D35,36
ON - OFF
SUPER WOOFER
D33,34
CENTER
ON - OFF
D31,32
ON - OFF
SURROUND
X14
(X14) IC2
LED DRIVER
(X14) VISUAL SELECT LED
D20~22
(X14) INPUT SELECT LED
D23~30
Q7 (X14)
CD/LD DIRECT IND.
PL1
EQ. AMP
GE. AMP
MOTOR DRIVER
INPUT SELECTOR
PHASE SHIFTER
DIRECT INDICATOR etc.
DECK MOTOR
DECK
REAR AMP
FRONT AMP
FL (DECK, GE)
AC
POWER
μ-COM
LED
FL
TUNER +B
FL (TUNER)
AC
Q9,10
AVR +-5.5V
IC5,6
AVR +12V
Q7,8
AVR +12V
IC4
AVR +18V
Q17
IC9
AVR +5V
Q18,19
AVR +30V
D14~17
D19
D12,13
D18
D34,35
D30~33
AC RELAY
PT (MAIN)
PT (SUB)
OUT LET
K1
AC 100V 50/60Hz
CONTROL SIGNAL to TC4052BP
VISUAL INPUT IC8 TC4052BP
VIDEO AMP Q11~13
VIDEO AMP Q14~15
AV AUX/BS (FRONT)
LD
IN
OUT
VIDEO
AV AUX (REAR)
MONITOR 1
MONITOR 2
VISUAL
INPUT 1V/75Ω
OUTPUT 1V/5KΩ
VISUAL

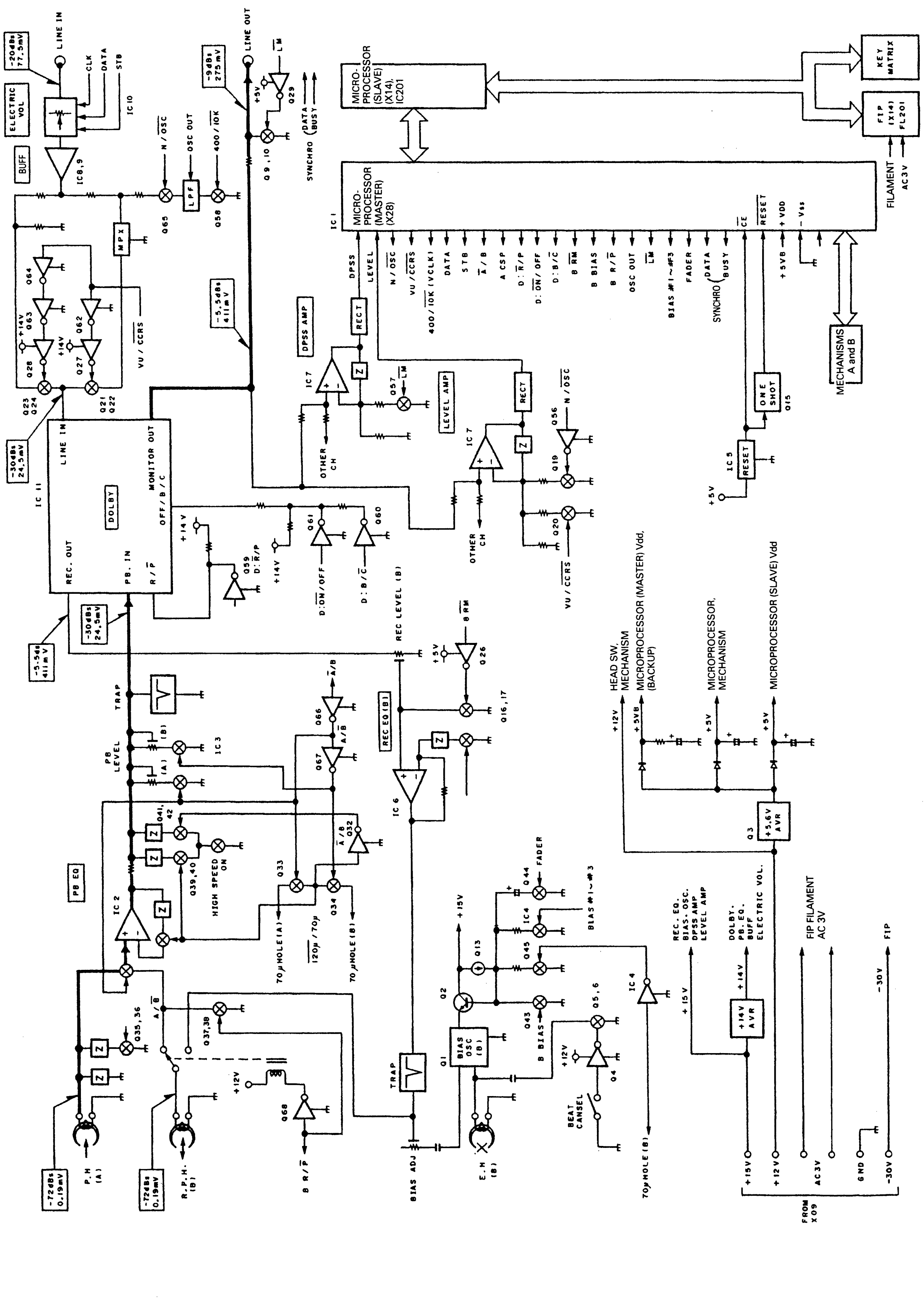
BLOCK DIAGRAM

Tuner unit (X28)


AUDIO (X09)
REC OUTPUT
FM 600mV / 3.3KΩ
AM 180mV / 3.3KΩ
Lch
Rch
Q309
MUTE
Q310
MUTE
Q311
MUTE CONT.
Q305
EMPH
Q306
EMPH
S2
OPEN:50μS
SHORT:75μS
CHANNEL SPACE
S2
OPEN: 10kHz (AM), 100kHz (FM)
SHORT: 9kHz (AM), 50kHz (FM)
MPX
IC14
MAIN CONTROLLER
(X14) IC1
X1
4.19MHz
(X14)
KEY BOARD
F.I.P
(X14) FL1
L19
Q.R DET
FM SECTION
AM SECTION
IC12
L18
AM IFT
CF2
CF
Q301
IF AMP
CF1
CF
SUB CONTROLLER
IC13
X2
7.2MHz
L.P.F
Q302,303
BAND SELECTOR
Q307,308
T1
IFT
TR2
MIX
TR3
BUFF
TR4
OSC
AM
L3,L4
L6
TR1
RF AMP
L1,L2
(W02-0699-05)
L20
FM ANT
75Ω
GND
300Ω
FM ANT
AM ANT

BLOCK DIAGRAM

Recording/playback amplifier unit (X28)

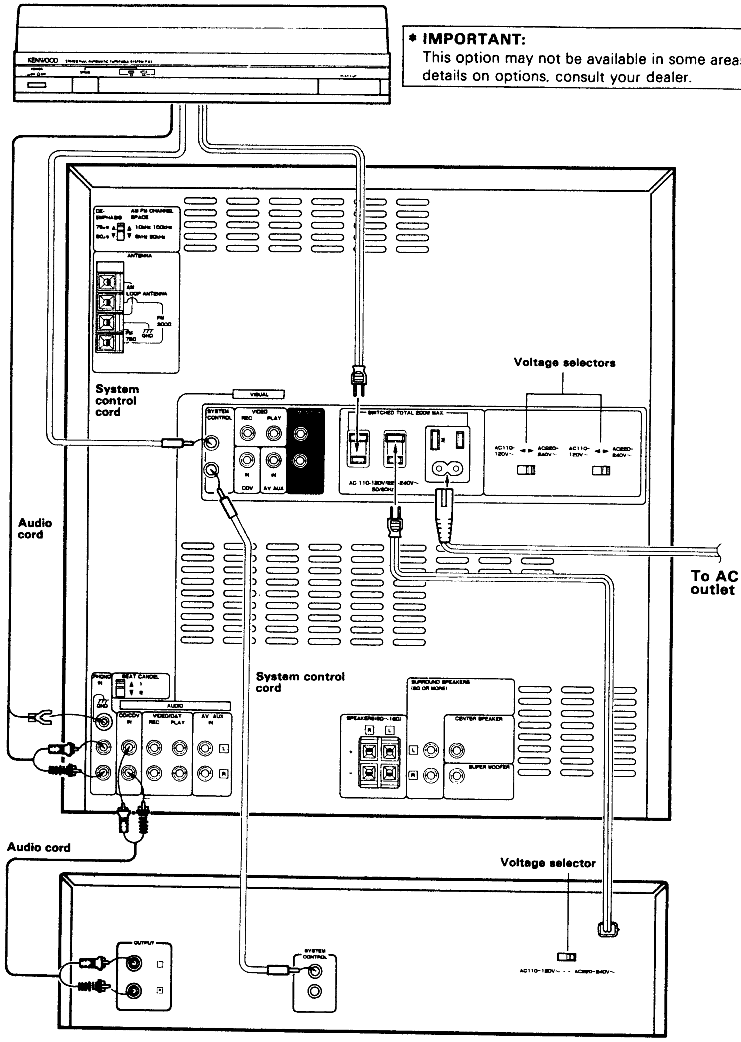

LINE IN
-20dBs 77.5mV
ELECTRIC VOL
CLK
DATA
STB
IC10
BUFF
IC8,9
N/OSC
OSC OUT
LPF
400/10K
Q65
Q58
LINE OUT
-9dBs 275mV
+5V
Q29
LM
DATA
BUSY
SYNCHRO
Q9,10
MPX
Q64
Q63
Q62
+14V
Q28
Q27
VU/CCRS
Q23 Q24
Q21 Q22
-5.5dBs 411mV
-30dBs 24.5mV
IC11
LINE IN
MONITOR OUT
DOLBY
OFF/B/C
REC. OUT
PB. IN
R/P
Q59
D: R/P
Q61
Q60
D: ON/OFF
D: B/C
MICRO-PROCESSOR (SLAVE) (X14) IC201
KEY MATRIX
FIP (X14) FL201
FILAMENT AC3V
IC1
MICRO-PROCESSOR (MASTER) (X28)
DPSS LEVEL
N/OSC
VU/CCRS
400/10K (VCLK)
DATA
STB
A/B
A CSP
D: R/P
D: ON/OFF
D: B/C
B RM
B BIAS
B R/P
OSC OUT
LM
BIAS #1~#3
FADER
SYNCHRO DATA BUSY
CE
RESET
+VDD
-Vss
+5VB
MECHANISMS A and B
DPSS AMP
RECT
IC7
Z
Q57
LEVEL AMP
OTHER CH
Q56
Q19
Q20
ONE SHOT
Q15
IC5
RESET
+5V
HEAD SW. MECHANISM
MICROPROCESSOR (MASTER) Vdd. MICROPROCESSOR (BACKUP)
MICROPROCESSOR. MECHANISM
MICROPROCESSOR (SLAVE) Vdd
+12V
+5VB
Q3
+5.6V AVR
REC LEVEL (B)
B RM
Q26
Q16,17
REC EQ (B)
IC6
TRAP
PB LEVEL
(A)
(B)
IC3
Q66
Q67
A/B
Q32
Q41,42
Q39,40
HIGH SPEED ON
Q33
Q34
70μ HOLE (A)
120μ/70μ
70μ HOLE (B)
PB EQ
IC2
Q35,36
Q37,38
+12V
Q68
B R/P
P.H (A)
R.P.H. (B)
-72dBs 0.19mV
BIAS ADJ
TRAP
Q1
BIAS OSC (B)
Q2
Q13
+15V
Q44
FADER
IC4
BIAS #1~#3
Q45
Q43
B BIAS
Q5,6
Q4
BEAT CANSEL
E.H (B)
70μ HOLE (B)
REC. EQ. BIAS. OSC. DPSS AMP LEVEL AMP
DOLBY. PB. EQ. BUFF ELECTRIC VOL.
+15V
+14V
+14V AVR
FIP FILAMENT AC 3V
-30V
FIP
+15V
+12V
AC3V
GND
-30V
FROM X09

Connections

Make connection as shown below. When connecting the related system components, refer also to the instruction manuals of the related components.
Do not plug in the power lead until all connections are complete.

- **Turntable P-63 (optional)**

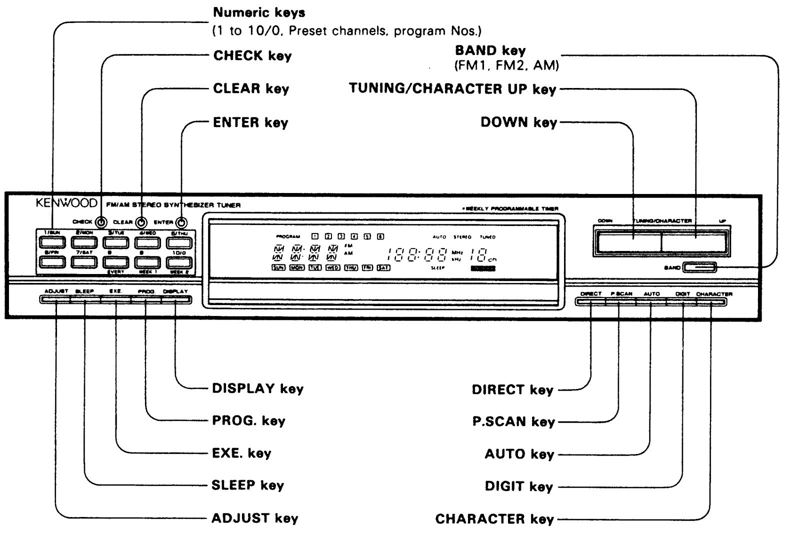
*** IMPORTANT:**
This option may not be available in some areas. For details on options, consult your dealer.


KENWOOD
Voltage selectors
System control cord
Audio cord
To AC outlet
System control cord
Audio cord
Voltage selector

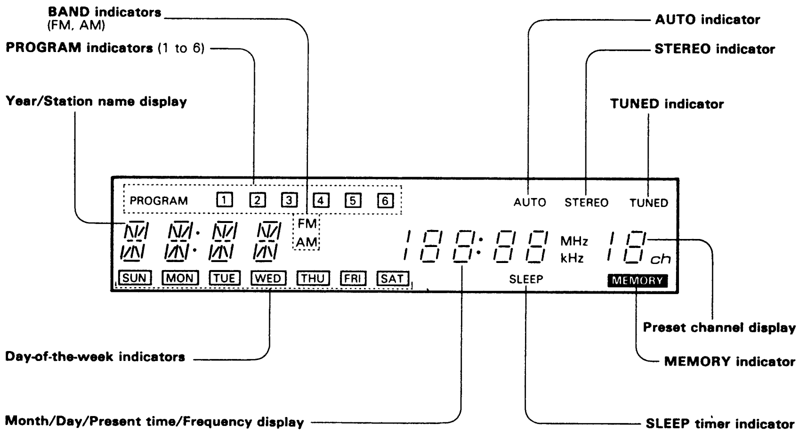
- **CD player (DP-530, optional)**

Controls and indicators

Tuner

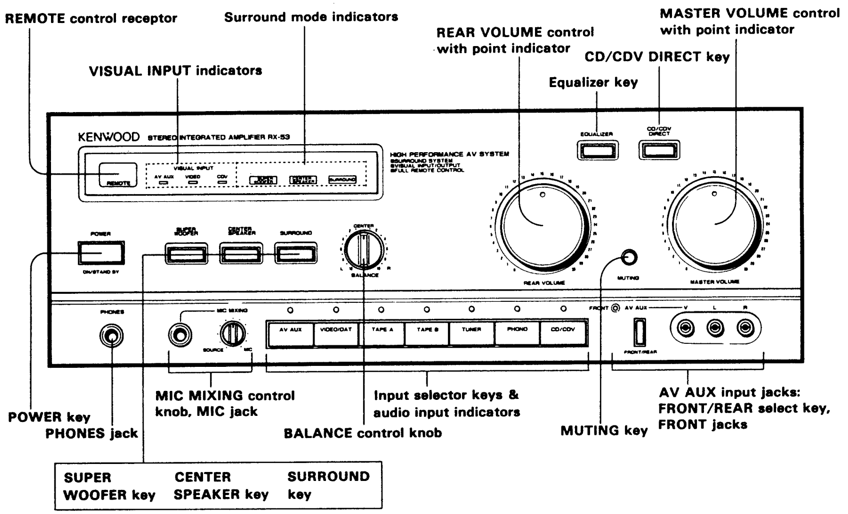

Numeric keys
(1 to 10/0, Preset channels, program Nos.)
CHECK key
CLEAR key
ENTER key
BAND key
(FM1, FM2, AM)
TUNING/CHARACTER UP key
DOWN key
KENWOOD
DISPLAY key
PROG. key
EXE. key
SLEEP key
ADJUST key
DIRECT key
P.SCAN key
AUTO key
DIGIT key
CHARACTER key

Display panel

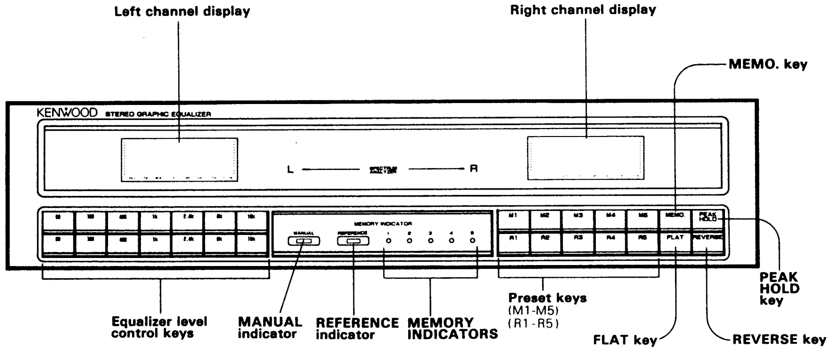

BAND indicators
(FM, AM)
PROGRAM indicators (1 to 6)
Year/Station name display
AUTO indicator
STEREO indicator
TUNED indicator
PROGRAM
1
2
3
4
5
6
AUTO
STEREO
TUNED
FM
AM
MHz
kHz
ch
SUN
MON
TUE
WED
THU
FRI
SAT
SLEEP
MEMORY
Preset channel display
MEMORY indicator
Day-of-the-week indicators
Month/Day/Present time/Frequency display
SLEEP timer indicator

Controls and indicators

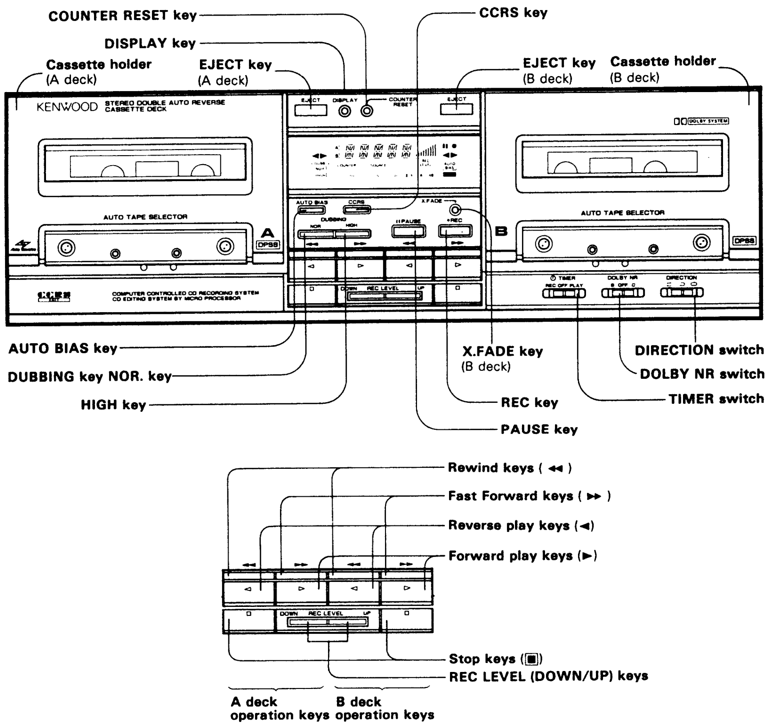
Amplifier


REMOTE control receptor
Surround mode indicators
VISUAL INPUT indicators
REAR VOLUME control with point indicator
MASTER VOLUME control with point indicator
CD/CDV DIRECT key
Equalizer key
KENWOOD
POWER key
PHONES jack
MIC MIXING control knob, MIC jack
Input selector keys & audio input indicators
BALANCE control knob
MUTING key
AV AUX input jacks: FRONT/REAR select key, FRONT jacks
SUPER WOOFER key
CENTER SPEAKER key
SURROUND key

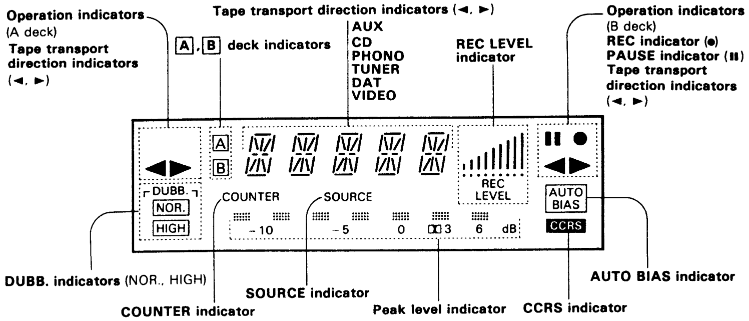
Graphic equalizer


Left channel display
Right channel display
MEMO. key
KENWOOD
L
R
PEAK HOLD key
Equalizer level control keys
MANUAL indicator
REFERENCE indicator
MEMORY INDICATORS
Preset keys (M1-M5) (R1-R5)
FLAT key
REVERSE key

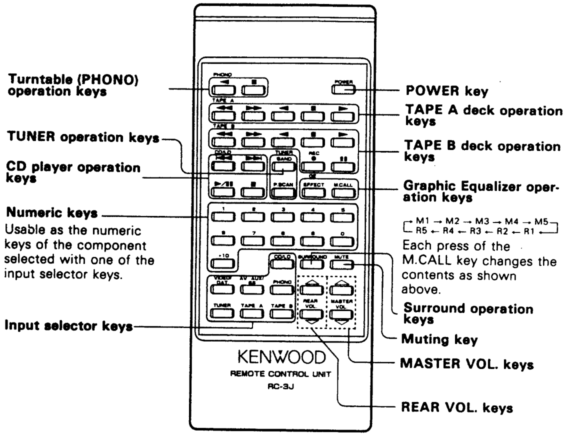
Cassette deck


COUNTER RESET key
DISPLAY key
Cassette holder (A deck)
EJECT key (A deck)
CCRS key
EJECT key (B deck)
Cassette holder (B deck)
KENWOOD
A
B
AUTO BIAS key
DUBBING key NOR. key
HIGH key
X.FADE key (B deck)
REC key
PAUSE key
DIRECTION switch
DOLBY NR switch
TIMER switch
Rewind keys (◄◄)
Fast Forward keys (►►)
Reverse play keys (◄)
Forward play keys (►)
Stop keys (■)
REC LEVEL (DOWN/UP) keys
A deck operation keys
B deck operation keys

Display panel


Operation indicators (A deck)
Tape transport direction indicators (◄, ►)
Tape transport direction indicators (◄, ►)
AUX
CD
PHONO
TUNER
DAT
VIDEO
A, B deck indicators
REC LEVEL indicator
Operation indicators (B deck)
REC indicator (●)
PAUSE indicator (II)
Tape transport direction indicators (◄, ►)
DUBB.
NOR.
HIGH
COUNTER
SOURCE
REC LEVEL
AUTO BIAS
CCRS
-10
-5
0
3
6
dB
DUBB. indicators (NOR., HIGH)
COUNTER indicator
SOURCE indicator
Peak level indicator
CCRS indicator
AUTO BIAS indicator

Remote control operation


Turntable (PHONO) operation keys
TUNER operation keys
CD player operation keys
Numeric keys
Usable as the numeric keys of the component selected with one of the input selector keys.
Input selector keys
POWER key
TAPE A deck operation keys
TAPE B deck operation keys
Graphic Equalizer operation keys
M1 → M2 → M3 → M4 → M5 → R5 → R4 → R3 → R2 → R1
Each press of the M.CALL key changes the contents as shown above.
Surround operation keys
Muting key
MASTER VOL. keys
REAR VOL. keys
KENWOOD
REMOTE CONTROL UNIT
RC-3J

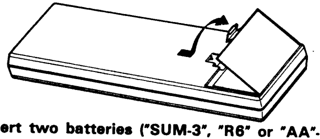
■ Operation of the remote control unit

1. **Insert the power plug of the amplifier into an AC wall outlet.**
   - The amplifier enters the STAND BY mode.
2. **Point the remote control unit toward the amplifier and press the POWER key on the remote control unit.**
   - The power of the amplifier is switched ON.
3. **The operation keys on the remote control unit can control the system components connected to the amplifier via the system control cord, as well as the amplifier itself.**
   - For the operation keys for the CD player, and turntable, please read their instruction manuals.
   - Other operation keys function the same as the operation keys on the corresponding components of this system.

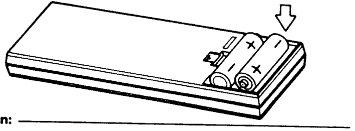
Caution:
When two operation keys on the remote control unit are pressed successively, press each key securely reserving an interval of more than 1 second for each press.
Do not press the next key too early, or malfunction may result.

■ Loading batteries in the remote control unit

1. **Remove the cover.**



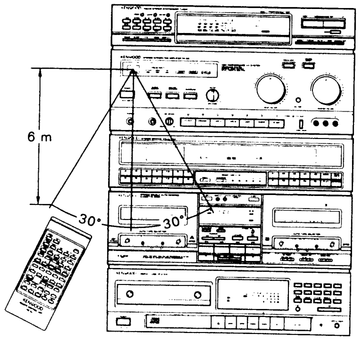
2. **Insert two batteries ("SUM-3", "R6" or "AA"-size) with correct polarity, and close the cover again.**



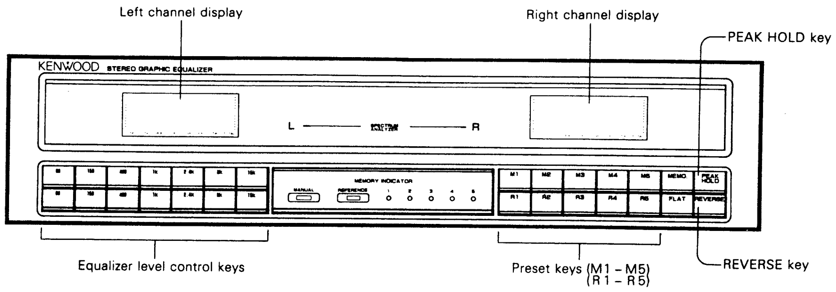
Caution:
The initially supplied batteries are intended for use in checking the remote control operations, so their service life may be shorter than usual. When the remote controllable distance shortens or remote control becomes impossible, replace both of the batteries with new ones.

■ Remote control unit operation range

The coverage angle and distance varies depending on the temperature and humidity. Refer to the following illustration for the approximate operation range.



Graphic equalizer operation


Left channel display
Right channel display
PEAK HOLD key
KENWOOD STEREO GRAPHIC EQUALIZER
L
R
MEMORY INDICATOR
MANUAL
REFERENCE
M1
M2
M3
M4
M5
MEMO
PEAK HOLD
R1
R2
R3
R4
R5
FLAT
REVERSE
Equalizer level control keys
Preset keys (M1 - M5) (R1 - R5)
REVERSE key

■ Storing manual preset memory

A total of ten equalizer patterns, consisting of two sets of five patterns, have been preset under the preset keys (M1 to M5, R1 to R5) at the factory. If the recalled equalizer pattern is not perfectly satisfactory for the music to be played, it can be corrected and stored under one of the manual preset keys (M1 to M5). Up to five patterns can be preset by the user in this way.

1. **Press one of the preset keys (M1 to M5, R1 to R5) to recall a preset pattern which is closest to the desired pattern.**
2. **Press the 7-band equalizer level control keys to obtain the desired equalizer pattern.**
3. **Press the MEMO. key.**
   - The MEMORY INDICATORS (M1 to M5) light.
4. **Within 5 seconds after pressing the MEMO. key above, press one of the M1 to M5 preset keys.**
   - The MEMORY INDICATOR corresponding to the pressed key remains lit but other lamps go off.
5. **Similarly, up to five user-created equalizer patterns can be preset under the manual preset keys.**

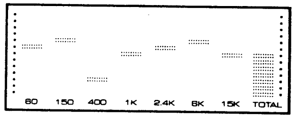
Notes:
1. **The corrected equalizer patterns cannot be stored under the reference preset keys (R1 to R5).**
2. **When a newly-created equalizer pattern is stored under a manual preset key (M1 to M5), the initial pattern which has been set under the key will be cleared.**
   The initial pattern can be regained by pressing the key and holding it for more than 5 seconds.

■ Recording sound processed with equalizer effect

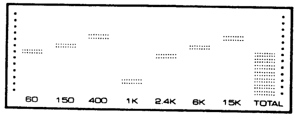
1. **Perform operations indicated in steps 1 to 3 of "How to play music with equalizer effect".**
   - For the convenience of the users, the reference preset patterns include patterns which are useful when creating tapes under specific conditions.
2. **Record the sound following "How to record".**
   - The sound will be recorded according to the equalizer pattern.

Equalizer pattern in double-speed recording
- Only the reference equalizer patterns under the R1 to R5 keys can be used for double-speed recording. If other key than these keys is selected, the sound is double-speed recorded with flat frequency response.
- The width of each frequency band of the R1 to R5 equalizer pattern is about doubled according to the doubled speed. As a result, the display content will change as shown below.
- Other patterns than R1 to R5 below are not compatible with double-speed recording.

Normal equalizer pattern display (R1)


60
150
400
1K
2.4K
6K
15K
TOTAL

Equalizer pattern display in double-speed recording (R1)

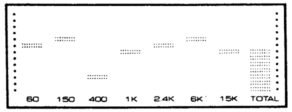

60
150
400
1K
2.4K
6K
15K
TOTAL

Each frequency level moves to the frequency band twice the normal pattern.

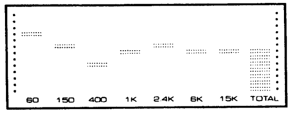
■ Preset Equalizer Pattern Chart

Preset equalizer patterns (R1 to R5)

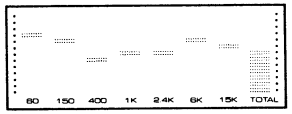
R1: For recording onto tapes to be played on a headphone stereo



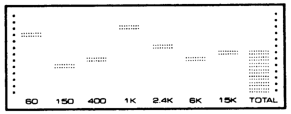
R2: For recording onto tapes to be played on a car stereo



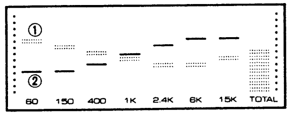
R3: For listening to powerful music, such as rock and fusion, with more drive



R4: For listening to various musical categories by enhancing the vocal



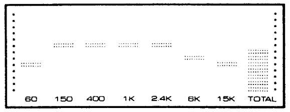
R5: For enhancing the bass in order to reduce high-frequency noise relatively



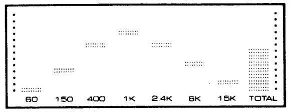
Pattern ② is set only in case of double-speed recording. When the tape is played with pattern ①, noise in high frequencies can be reduced considerably.

Initial patterns, preset equalizer patterns (M1 to M5)

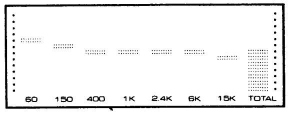
M1: For reducing ultra-low-frequency noise or scratch noise generated when playing analog disks



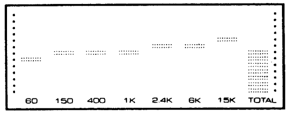
M2: For enjoying old jazz of the 50's, etc., with an ambience of those days



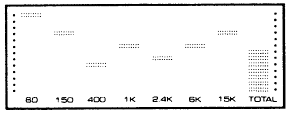
M3: For long-hour listening or playing music as BGM (background music)



M4: For listening to details of sound of certain sources



M5: For listening at exciting sound with enhanced ultra-low and high frequencies (Exciting sound)

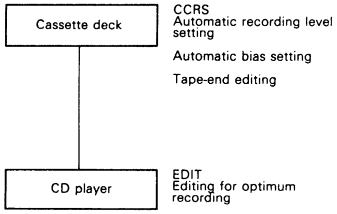


How to record

Recording CD sound

For recording CD play sound, it is recommended to use the following features which are designed to provide more effective and more convenient operations.

1. CCRS, which automatically adjusts the optimum recording level and recording bias for each CD and starts recording.
2. X. FADE, which provides fade-in and fade-out at the beginning and ending of each tune, allowing to create a continuous music tape without unnatural blanks between tunes.
3. EDIT, which, together with CCRS, enables optimum and loss-free recording by re-arranging the order of the tunes on the CD according to the recording length of the tape.

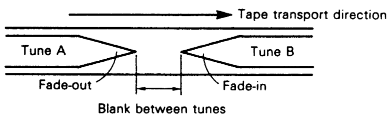


■ CCRS (Computer-controlled CD Recording System)

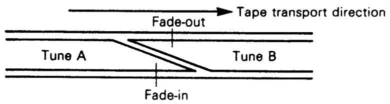
When the CCRS key is pressed, the following operations occur automatically and CD sound is recorded on tape.

1. The CD starts to be played, and the peak value is sampled from the levels of the signals on the CD.
2. The optimum recording level for the specific CD is determined and set based on the peak value sampled.
3. The cassette deck starts the auto-bias setting.
4. The recording preparation steps above take about 120 seconds, after which the actual recording starts.
5. After recording (when the CD player is stopped or when the tape has run out), both the cassette deck and CD player stop.

Normal fade-out/fade-in recording



X. FADE recording



■ X. FADE (cross-fade) recording

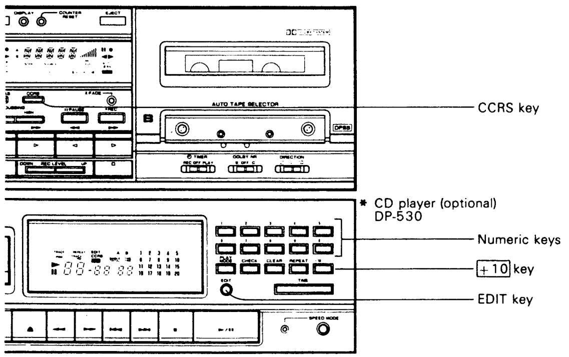
Fade-in refers to the recording starting method with which music starts at a very small volume and the volume increases gradually until the normal volume, and fade-out refers to the recording ending method with which the music volume decreases gradually until a very small volume before ending.

X. FADE provided for this system performs the fade-out of an ending tune simultaneously with the fade-in of the next tune, making it possible to achieve a continuous recording without blanks between tunes.

Like music played in a disco, it is possible to create a music tape in which tunes are switched while the listeners does not really notice it.

To initiate X. FADE recording, just press the X. FADE key. The X. FADE recording starts automatically similarly to the CCRS recording.

- The display of the cassette deck shows "FADE" during X. FADE recording.



■ Recording using the Edit function of CD player

The Edit function of the CD player re-arranges the order of tracks in the CD in accordance with the recording length of the tape to be used; thanks to this, the music will not end by leaving long blank after it at the end of each side of tape, and the music will not end halfway at the end of tape. (For details, please read the instruction manual supplied with the CD player.)

1. Place a CD on the CD player tray.

2. Press the EDIT key of the CD player.

3. Within 5 seconds after pressing the EDIT key above, press the numeric keys of the CD player to enter the two-way recording time of the tape to be used for recording.

- With a C-60 tape, press the +10 key six times and 0 key once.
  With a C-46 tape, press the +10 key four times and 6 key once.

4. Inset a tape in the B deck for use in recording.

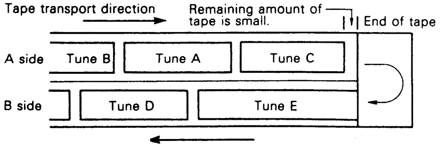
- The tape should be rewound completely.

5. Perform operations as indicated in "Setup of controls" in "Preparation for recording".

6. Press the CCRS key of the cassette deck.

- Recording is started automatically by the CCRS.
- After recording, both cassette deck and CD player stop automatically.
- To stop recording in the middle, press the stop key.

Tape recording contents



■ Fade-out/Fade-in recording

With this function, when the end of the A side of a tape is reached, the tune being recorded is faded out, and the tune is faded back in at the beginning of the reverse side of the tape.

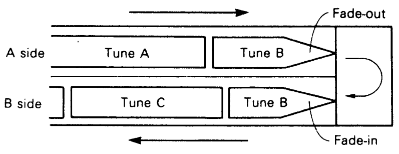
1. Set the CD player play mode track mode.

- The TRACK indicator lights.

2. Prepare for recording on the cassette deck.

3. Press the CCRS key.

- The tunes on the CD are recorded in the order of their track numbers.
- When the end of the A side of the tape is reached in the middle of a tune, the tape is rewound slightly and the tune is faded out.
- Recording then begins on the B side of the tape by fading in the same tune from where it left off at the end of the A side.



*** IMPORTANT:**
This option may not be available in some areas. For details on options, consult your dealer.

■ Recording from the beginning of a tune at the beginning of the reverse side

With this function, when the end of the A side of the tape is reached in the middle of a tune, that tune is erased from the A side and re-recorded from the beginning at the beginning of the B side.

1. Set the CD player play mode to program mode.

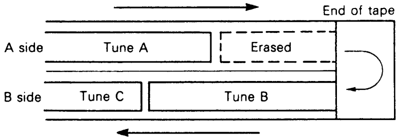
- The PROGRAM indicator lights.

2. Program the tracks to be recorded in the desired order.

3. Prepare for recording on the cassette deck.

4. Press the CCRS key.

- The tunes on the CD are recorded in the programmed order.
- When the end of the A side of the tape is reached in the middle of a tune, the tape is rewound slightly and the incomplete tune is erased.
- The same tune is then re-recorded from the beginning at the beginning of the B side.



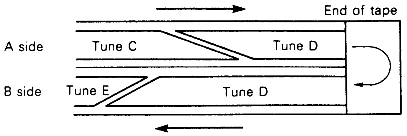
■ X. FADE recording

1. Set the CD player to the desired play mode (track, program, or edit).

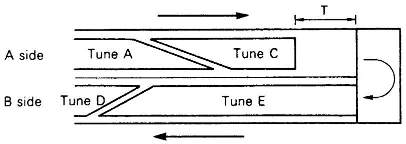
2. Press the X. FADE key.

- Recording begins according to the play mode selected on the CD player.
- During recording, each transition between tunes is recorded as a fade-out/fade-in transition.
- If the end of the A side of the tape is reached in the middle of a tune, the tune is cut off at that point and then re-recorded from the beginning at the beginning of the B side.

In track or program mode

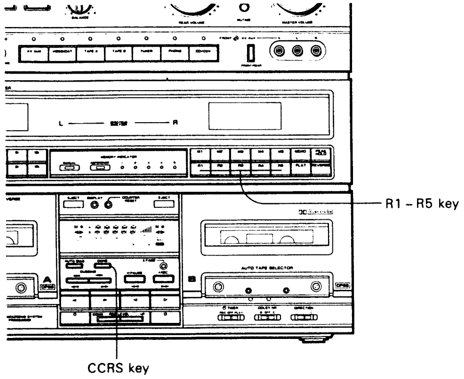


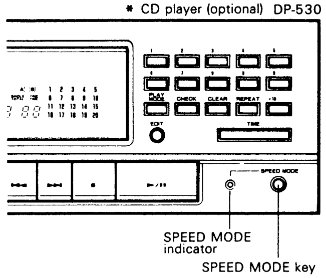
In edit mode
The length (T) of the blank section left at the end of the tape will be longer than expected.



Notes:

1. **If the CCRS key is pressed during CD playback, playback stops and CCRS operation begins.**
2. **Do not press another key such as the AUTO BIAS key after pressing the CCRS key. If another key is pressed, the CCRS settings may not be carried out normally.**
3. **If the remaining amount of tape is small, CCRS operation may be canceled in mid-operation.**
4. **Once the CCRS recording level has been set, the recording level cannot be adjusted while the CCRS operation is being carried out.**
5. **The CCRS function sets the peak level for the entire CD in approx. 120 seconds. On very rare occasions, however, the function may not be able to set the optimum recording level. If this occurs, carry out recording manually referring to the "Synchro recording with CD" section.**
6. **The auto-bias setting of the cassette deck is canceled when the EJECT key of deck B is pressed.**
7. **The CCRS recording level setting is canceled when the OPEN/CLOSE key of the CD player is pressed or when the power is switched OFF. However, if the auto-bias of the cassette deck has already been set (if the AUTO BIAS indicator is lit) when one of these actions occurs, the set bias value will be retained.**
8. **With a CD such as a classical music CD which contains a tune with a very long track length, the CCRS function may not be able to be used due the fact that the tune may not be recordable on a single side of a tape. In such a case, record the CD manually referring to the "Synchro recording with CD" section.**
9. **It is not recommended to use the X. FADE function when recording tunes which already contain fade-in and/or fade-out sections, as blank spaces may be recorded between tunes.**
10. **When the CCRS function is used to record CDs such as live music CDs which do not have definite start and stop points, blank spaces may be automatically inserted between tunes.**





* CD player (optional) DP-530

■ CCRS double-speed recording

The CD sound can be recorded at twice the normal speed and with the graphic equalizer effect by following the simple procedure below.

1. **Insert a recordable tape in B deck.**
   - Dolby NR cannot be used in double-speed recording.
2. **Place a CD to be recorded on the CD player tray. The CD player should be in the stop mode.**
3. **Press the SPEED MODE key of the CD player.**
   - The indicator lights up.
4. **Press one of the reference preset keys (R1 to R5) of the graphic equalizer according to the purpose.**
   - Since Dolby NR cannot be used, it is recommended to select the pattern under the R5 preset key.
   - For details, please refer to "Graphic equalizer operation".
   - If the graphic equalizer effect is not required, set the equalizer pattern to the flat pattern or press the EQUALIZER key to OFF (extinguished).
5. **Press the CCRS key of the cassette deck.**
   - Recording starts automatically in about 80 seconds.
   - At the tape end, the recording is completed with the same manner as in "Fade in, Fade out Recording".
   - When the recording is completed, the cassette deck enters the stop mode after reserving a non-recorded blank of about 6 seconds, and the SPEED MODE indicator of the CD player goes off.
   - The edited contents of the recording are the same as with normal-speed CCRS operation.

Cautions:

1. **It is not possible to listen to another source during double-speed recording.**
2. **When the CD is played by manual operation after having pressed the SPEED MODE key, the CCRS double-speed recording will be canceled.**
3. **X. FADE recording is not available in the double-speed recording mode.**

■ Synchro recording with CD

It is also possible to start the cassette deck and CD player simultaneously.

1. **Perform operations indicated in "Preparation for recording".**
2. **Place a CD on the CD player tray.**
3. **Following the operations indicated in "Setting the recording level", play the CD and set the recording level.**
4. **Put the cassette deck and CD player in the stop mode.**
5. **Put the B deck in the record-pause mode by pressing the REC key while holding the PAUSE key depressed.**
6. **Press the PLAY/PAUSE key of the CD player.**
   - When the CD starts to be played, the cassette deck starts recording.
   - When the CD finishes to be played, the cassette deck stops recording.

To pause recording temporarily:

Press the PLAY/PAUSE key of the CD player.
- The cassette deck enters the record-pause mode after reserving a non-recorded blank of about 4 seconds.
- To resume recording, press the PLAY/PAUSE key again.

*** IMPORTANT:**
This option may not be available in some areas. For details on options, consult your dealer.

CIRCUIT DESCRIPTION

Audio unit (X09-3000-21)

Component	Semiconductor used	Use/function	Operation/condition/compatibility
IC 1	μPC4570C-A	For EQ amplification	Operates on ±12V.
IC 2	TC9164N	Input selector	Selects between inputs (PHONO, CD, VIDEO, AV AUX, TUNER, TAPE) or between recording outputs (VIDEO, TAPE) by the ST, DATA and CLK signals from microprocessor X14-2690-21.
IC 3	STK4184/5	Power amplifier (front)	Operates on ±38V and generates a power of 65 watts for a distortion rate of 10 % in 6-ohm operation.
IC 4	μPC7815HF AN7815F	+15V regulated voltage	For deck
IC 5	μPC7812HF AN7812F	+12V regulated voltage	For ICs
IC 6	μPC7912HF AN7912F	−12V regulated voltage	For ICs
IC 7	TA8200AH	Power amplifier (rear)	Operates on a single power of +36V and generates a power of 10 watts for a distortion rate of 10 % in 8-ohm operation.
IC 8	TC4052BP	Video I/O selection	Operates on ±5V and selects between inputs according to "H"/"L" combination of its pins 9 and 10. Two systems of 4-inputs/output
IC 9	μPC7805HF AN7805F	+5V regulated voltage	For microprocessor
Q1	2SA733 (A) (Q, P) 2SA933S (Q, R)	Superwoofer ON/OFF drive	The collector is "H" when the base is "L" with the emitter subject to application of 5V.
Q2	2SD1302 (S, T)	Center speaker ON/OFF	Center speaker OFF with the base "H"
Q3	2SD1302 (S, T)	Superwoofer ON/OFF	Superwoofer OFF with the base "H"
Q4	2SA733 (A) (Q, P) 2SA933S (Q, R)	Q5 control	When the headphones are plugged in, its base becomes "L" to make the base of Q5 "H".
Q5	2SA954 (L, K)	Output relay control	Controlled by the above Q4, this Q5 goes ON about 3 seconds later from power ON to turn ON the output relay.
Q7	2SC945 (A) (Q, P) 2SC1740S (Q, R)	+12V regulated voltage	Produces +12V for deck mechanism due to a Darlington connection.
Q8	2SD1266		
Q9	2SD1266	±5.5V regulated voltage	For IC8
Q10	2SB941		
Q11～13	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Video amplifier	For video recording
Q14～16	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Video amplifier	For MONITOR OUT1/OUT2
Q17	2SC2003 (L, K)	AC relay control	Upon arrival of the POWER ON signal ("H") from the microprocessor, goes ON to operate an AC relay.
Q18	2SA1110 (R, S)	−30V regulated voltage	For FL tube

CIRCUIT DESCRIPTION

Control unit (X11-2760-00)

Component	Semiconductor used	Use/function	Operation/condition/compatibility
IC 1	M5229P	Equalizer circuit	Equalizer circuit L-ch
IC 2	M5229P	Equalizer circuit	Equalizer circuit R-ch
IC 3	LC7522	Equalizer circuit	Equalizer electronic volume control
IC 4	TC9162N	GE ON/OFF	GE ON/OFF
IC 5	μPC4570C-A	Microphone circuit	Microphone amplifier
IC 6	μPC4570C-A	Buffer circuit	Spectrum analyzer buffer
IC 7 ~ 10	NJM2058D	Spectrum analyzer circuit	Spectrum analyzer's each frequency band pass filter and total display amplifier
IC 11	TC74HC4051AP	8-ch analog multiplexer	Selects between L-ch each frequency band pass, L-ch total and R-ch total outputs by the signal from the microprocessor so that they can be taken in through only one port of the microprocessor.
IC12, 13, 17	LB1294	FL driver	Drives FL grids by signals extended by IC15.
IC 14, 16	TC74HC77AP	LED driver	
IC 15	TC74HC4028P	4 to 10 decoder	Extends to 10 signals the signals from 4 ports of the microprocessor.
IC 18	M50940-146SP	Microprocessor	Controls over graphic equalizer/spectrum analyzer display, graphic equalizer, etc.
IC 19	PST529D	Reset IC	Microprocessor reset, CE control
IC 20	M5218L	Buffer circuit	GE output buffer
Q2	2SC945 (A) (Q,P) 2SC1740S (Q, R)	L-ch BPF output, R-ch total signal selection circuit	By the signal from the microprocessor, Q2 and Q3 go ON, so that the R-ch total signal is cut and the L-ch BPF output and L-ch total signals are input to the microprocessor. In addition, when Q2 and Q3 is to go OFF, the R-ch total signal alone is input to the microprocessor so that the output of IC12 also goes OFF.
Q3	2SA733 (A) (Q, P) 2SA933S (Q, R)		
Q4	2SC945 (A) (Q, P) 2SC1740S (Q,R)	-30V ON/OFF circuit	By the signal from Q5, turns ON/OFF the -30 V applied to the filament mid-point to let the FL tube light on or go out.
Q5	2SA733 (A) (Q, P) 2SA933S (Q,R)	-30V ON/OFF circuit	Inverts the signal from the microprocessor to drive Q4.

CIRCUIT DESCRIPTION

Display unit (X14-2690-21)

Component	Semiconductor used	Use/function	Operation/condition/compatibility
IC 1	CXP50112-010Q	Microprocessor (receiver)	
IC 2	CXD1067P	LED driver extension IC	
IC 3	PST529D	Reset IC	
IC 101, 102	BA6209N	Motor driver	
IC 103	μPC4570C-A	Phase shift buffer	
IC 104	μPC4570C-A	Phase shift	
IC 201	μPD7537ACU-214	Microprocessor (deck)	
Q2	2SA733 (A) (Q, P) 2SA933S (Q, R)	Switch	Center speaker ON/OFF
Q3	2SA733 (A) (Q, P) 2SA933S (Q, R)	Channel switch	Channel space selection
Q4	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Driver	SURROUND LED
Q5	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Driver	CENTER SPEAKER LED
Q6	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Driver	SUPER WOOFER LED
Q7	2SC2003 (L, K)	Driver	DIRECT lamp
Q8	2SC2003 (L, K)	Driver	GE lamp
Q9, 10	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Filament mid-point control	FL tube lights at microprocessor power ON.
Q11	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Reset	
Q101	2SA733 (A) (Q, P) 2SA933S (Q, R)	Switch	Mute
Q102	2SA733 (A) (Q, P) 2SA933S (Q, R)	Switch	Surround
Q103, 104	2SD1302 (S, T)	Muting	Front, muting ON with base "H"
Q105, 106	2SD1302 (S, T)	Muting	Rear, surround OFF with base "H"
Q107	2SC945 (A) (Q, P) 2SC1740S (Q, R)	5V regulated voltage	

CIRCUIT DESCRIPTION

Recording/playback amplifier unit (X28-2080-21)

Component	Semiconductor used	Use/function	Operation/condition/compatibility
IC 1	μPD75112CW-031	Microprocessor	Controlled by X14-C/4 IC201 (slave microprocessor), controls over the mechanism and every electronic circuit. Without interchangeable IC
IC 2	CXA1115BP	Playback EQ IC	Controlled by IC1 mechanism switch, switches the playback output of deck A or B to amplify it. Without interchangeable IC
IC 3	TD62554S	Playback EQ SW	Controlled by Q66 and Q67. For play on deck A, its pins 2 and 4 become "H" to connect VR1 and VR2 to GND, while for play on deck B, its pins 1 and 3 become "H" to connect VR3 and VR4 to GND. Without interchangeable IC
IC 4	TD62554S	Auto bias inverter	Controlled by pins 28, 29 and 30 of IC1. After power ON, its pin 2 becomes "H". Due to the result of auto bias, its pins 6, 7 and 8 change to one of 8 possible combinations of all "L" to all "H". However, with a metal tape, they all become "L". Without interchangeable IC
IC 5	M51951ASL PST529D	Reset IC	Controlled by 5V power. Normally, output is 5V.
IC 6	CXA1198AP	Recording amplifier IC	Controlled by Q50-Q55. Has total 6 kinds of EQ characteristics for normal, CrO_2 and metal tapes at normal speed and high speed. An EQ characteristic is set by this IC
IC 7 (1/2)	NJM4565D NJM4558D	Level amplifier	Normally, works as a level meter amplifier. Rectifies the LINE OUT signal to transmit a DC signal to IC1 (microprocessor). For CCRS, serves as a CCRS amplifier with lowered gain. For auto bias, acts as an auto bias amplifier with raised gain.
IC 7 (2/2)	NJM4565D NJM4558D	DPSS amplifier	As a DPSS amplifier, rectifies the LINE OUT signal to transmit a DC signal to IC1 (microprocessor). For repeat (normal speed), raises the gain.
IC 8, 9	NJM4565D-D NJM4558D-A	Electronic volume buffer	Prevents any interference between the first and second stages of electronic volume control.
IC 10	TC9213P	Electronic volume IC	Controlled by pins 13, 33 and 34 of IC1, varies the input signal in steps of 1 dB. Without interchangeable IC
IC 11	HA12088ANT	Dolby IC	Controlled by Q59, Q60 and Q61, performs encoding and decoding for Dolby NR OFF/B/C. Without interchangeable IC

CIRCUIT DESCRIPTION

Component	Semiconductor used	Use/function	Operation/condition/compatibility
Q1	2SD863 (E, F)	Bias OSC (B)	Controlled by Q2, oscillates (at 105 kHz) only for recording on deck B. Without interchangeable transistor
Q2	2SD863 (E, F)	Bias control (B)	Controlled by Q16, supplies to Q1 an optimum bias voltage for each tape. Without interchangeable transistor
Q3	2SD863 (E, F)	5.6 V AVR	Controlled by D5, produces 5.6V from 12V. Without interchangeable transistor
Q4	2SA992 (E, F)	Beat canceller level shifter	Controlled by S1. OFF normally (S1= "1"). When beat occurs, goes ON by setting S1 to "2" from "1". Without interchangeable transistor
Q5, 6	2SC1845 (F, E)	Beat canceller SW	Controlled by Q4. Normally OFF. Goes ON by setting S1 to "2" from "1". Without interchangeable transistor
Q7	2SC3246	Solenoid hold (A)	Controlled by pin 62 (A HOLD) of IC1. Normally OFF, and ON only with the deck A's head raised. Without interchangeable transistor
Q8	2SC3246	Solenoid hold (B)	Controlled by pin 55 (B HOLD) of IC1. Normally OFF, and ON only with the deck B's head raised. Without interchangeable transistor
Q9, 10	2SD1302 (S, T)	Line OUT mute	Controlled by Q29. OFF only for play, recording, dubbing or CCRS. Without interchangeable transistor
Q11	2SA733 (A) (Q, P) 2SA933S (Q, R)	Normal speed SW (A)	Controlled by Q30. ON with deck A at normal speed, and OFF for high speed.
Q12	2SA733 (A) (Q, P) 2SA933S (Q, R)	Normal speed SW (B)	Controlled by Q31. ON with deck B at normal speed, and OFF for high speed.
Q13	2SA733 (A) (Q, P) 2SA933S (Q, R)	Fade constant current transistor	Controlled by Q43, flows a constant current to C25 for fade recording to make the bias ON time constant about 10 seconds.
Q14	2SA733 (A) (Q, P) 2SA933S (Q, R)	Level amplifier slicer	Slices the level amplifier output to +5V.
Q15	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Reset one-shot transistor	Controlled by +5V. Momentarily ON at power ON.
Q16	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Bias control (B)	Controlled by Q13 and Q43, supplies to Q2 an optimum bias voltage for each tape.
Q17, 18	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Recording mute	Controlled by Q26. OFF only for recording.
Q19	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Level amplifier gain SW	Controlled by Q56. ON only for auto bias.
Q20	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Level amplifier gain SW	Controlled by pin 12 of IC1. Normally ON.
Q21, 22	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Normal path	Controlled by Q27. ON except for CCRS.
Q23, 24	2SC945 (A) (Q, P) 2SC1740S (Q, R)	CCRS path	Controlled by Q28. ON only for CCRS.
Q25	DTA124EN	Auto bias metal OFF	Controlled by deck-B METAL HOLE, goes OFF only with metal tape so that pins 2, 3 and 4 of IC4 are 0V. Thereby, auto bias is not performed with metal tape. Without interchangeable transistor

CIRCUIT DESCRIPTION

Component	Semiconductor used	Use/function	Operation/condition/compatibility
Q26	DTA124EN	Recording mute drive	Controlled by pin 42 of IC1. OFF only for recording. Without interchangeable transistor
Q27	DTA124EN	Normal path drive	Controlled by Q62. ON except for CCRS. Without interchangeable transistor
Q28	DTA124EN	CCRS path drive	Controlled by Q64. ON only for CCRS. Without interchangeable transistor
Q29	DTA124EN	Line out mute drive	Controlled by pin 37 of IC1. ON except for play, recording and dubbing. Without interchangeable transistor
Q30	DTC124EN	High speed SW (A)	Controlled by pin 63 of IC1. OFF for high speed. Without interchangeable transistor
Q31	DTC124EN	High speed SW (B)	Controlled by pin 56 of IC1. OFF for high speed. Without interchangeable transistor
Q32	DTC124EN	Playback EQ inverter	Controlled by Q33 and Q34. ON with a 70 μsec tape played back. Without interchangeable transistor
Q33	DTC124EN	Playback EQ selector (A)	Controlled by Q66. ON for playback on deck A. Without interchangeable transistor
Q34	DTC124EN	Playback EQ selector (B)	Controlled by Q67. ON for playback on deck B. Without interchangeable transistor
Q35, 36	DTC124EN	Playback high-frequency compensation switch	Controlled by Q48. OFF only for high speed. Without interchangeable transistors
Q37, 38	DTC124EN	Playback IN mute (B)	Controlled by pin 44 of IC1. ON for recording. Without interchangeable transistors
Q39, 40	DTC124EN	High speed EQ (70 μsec)	Controlled by Q33 and Q34. ON only for high speed dubbing with a 70 μsec tape on deck A. Without interchangeable transistors
Q41, 42	DTC124EN	High speed EQ (120 μsec)	Controlled by Q33 and Q34. ON only for high speed dubbing with a 120 μsec tape on deck A. Without interchangeable transistors
Q43	DTC124EN	Bias ON/OFF	Controlled by pin 43 of IC1. OFF only for recording. Without interchangeable transistor
Q44	DTC124EN	Fade SW	Controlled by pin 27 of IC1. ON for fade. Without interchangeable transistor
Q45	DTC124EN	Bias normal SW	Controlled by pin 9 of IC4. ON for recording on normal tape. Without interchangeable transistor
Q46	DTC124EN	Metal hole inverter	Controlled by deck-B METAL HOLE. ON with metal tape. Without interchangeable transistor
Q47	DTC124EN	CrO_2 selector	Controlled by Q46 and deck-B 70 μsec HOLE. ON with CrO_2 tape. Without interchangeable transistor
Q48	DTC124EN	EQ speed inverter	Controlled by Q49. ON for high speed. Without interchangeable transistor
Q49	DTC124EN	EQ speed inverter	Controlled by pin 63 of IC1. OFF for high speed. Without interchangeable transistor

CIRCUIT DESCRIPTION

Component	Semiconductor used	Use/function	Operation/condition/compatibility
Q50	DTC124EN	Normal speed normal SW	Controlled by Q46, Q47 and Q48. ON with normal tape at normal speed. Without interchangeable transistor
Q51	DTC124EN	Normal speed CrO_2 SW	Controlled by deck-B 70 μsec HOLE, Q46 and Q48. ON with CrO_2 tape at normal speed. Without interchangeable transistor
Q52	DTC124EN	Normal speed metal SW	Controlled by deck-B 70 μsec HOLE, Q47 and Q48. ON with metal tape at normal speed. Without interchangeable transistor
Q53	DTC124EN	High speed normal SW	Controlled by Q46, Q47 and Q49. ON with normal tape at high speed. Without interchangeable transistor
Q54	DTC124EN	High speed CrO_2 SW	Controlled by deck-B 70 μsec HOLE, Q46 and Q49. ON with CrO_2 tape at high speed. Without interchangeable transistor
Q55	DTC124EN	High speed metal SW	Controlled by deck-B 70 μsec HOLE, Q47 and Q49. ON with metal tape at high speed. Without interchangeable transistor
Q56	DTC124EN	Auto bias inverter	Controlled by pin 23 of IC1. OFF for auto bias. Without interchangeable transistor
Q57	DTC124EN	Repeat SW	Controlled by pin 37 of IC1. ON for repeat. Without interchangeable transistor
Q58	DTC124EN	Test tone filter	Controlled by pin 13 of IC1. ON for auto bias 400 Hz. Without interchangeable transistor
Q59	DTC124EN	Dolby R/P SW	Controlled by pin 24 of IC1. ON for play. Without interchangeable transistor
Q60	DTC124EN	Dolby B/C SW	Controlled by pin 26 of IC1. ON for Dolby B. Without interchangeable transistor
Q61	DTC124EN	Dolby ON/OFF SW	Controlled by pin 25 of IC1. ON for Dolby OFF. Without interchangeable transistor
Q62	DTC124EN	MPX ON inverter (1)	Controlled by pin 35 of IC1. Normally ON. Without interchangeable transistor
Q63	DTC124EN	MPX ON inverter (2)	Controlled by pin 35 of IC1. Normally ON. Without interchangeable transistor
Q64	DTC124EN	MPX ON inverter (3)	Controlled by Q63. ON for CCRS. Without interchangeable transistor
Q65	DTC124EN	Auto bias test tone SW	Controlled by pin 23 of IC1. OFF for auto bias. Without interchangeable transistor
Q66	DTC124EN	Playback amplifier A/B SW (1)	Controlled by pin 41 of IC1. ON for play on deck B. Without interchangeable transistor
Q67	DTC124EN	Playback amplifier A/B SW (2)	Controlled by Q66. ON for play on deck A. Without interchangeable transistor
Q68	DTC124EN	Head SW driver	Controlled by pin 44 of IC1. ON for recording. Without interchangeable transistor

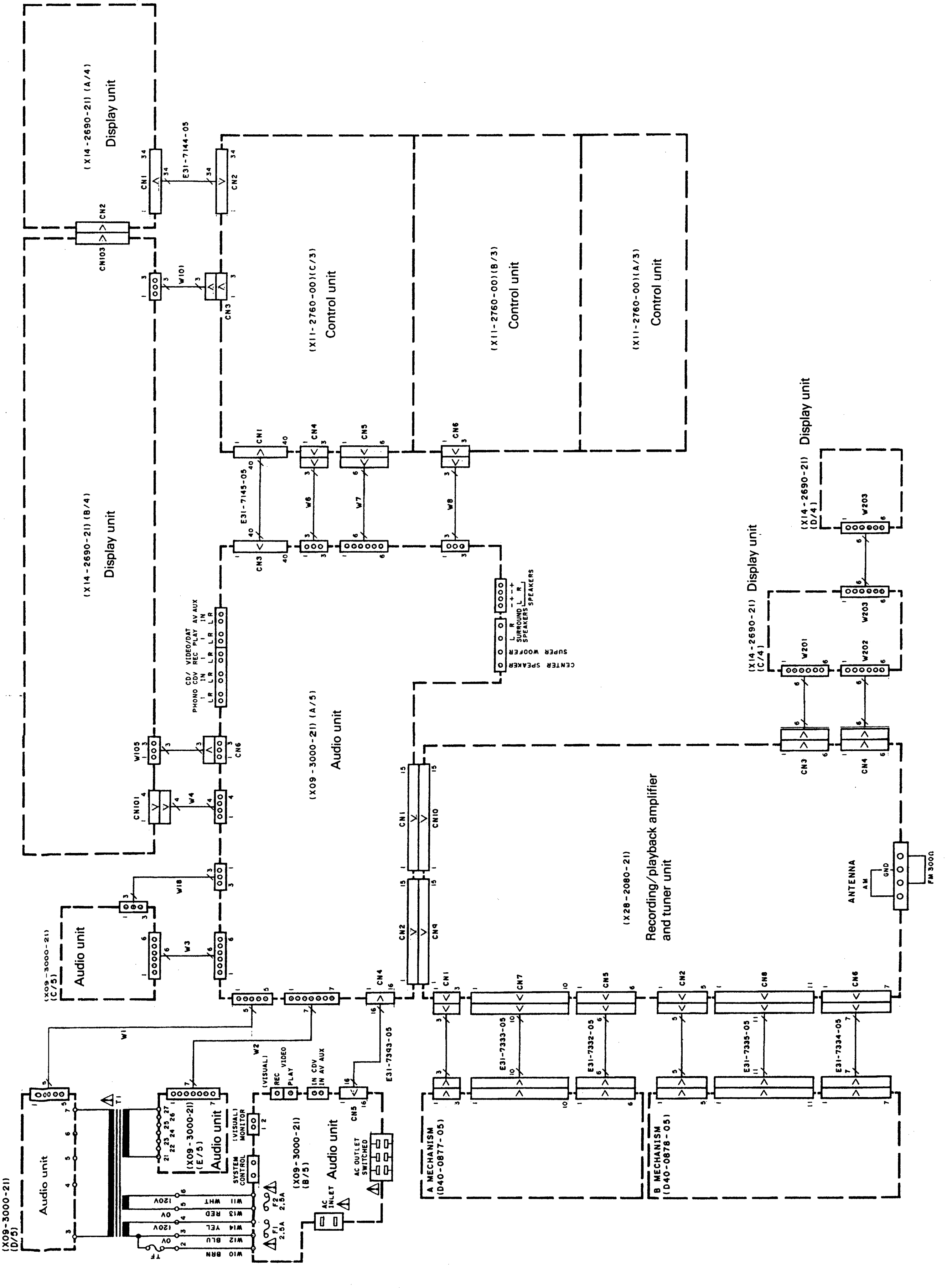
CIRCUIT DESCRIPTION

Tuner unit (X28-2080-21)

Component	Semiconductor used	Use/function	Operation/condition/ compatibility
IC12	LA1265	FM/AM system IC	FM IF amplification, detection, and AM mixing, IF amplification, detection, control
IC13	LM7001	PLL IC	Electronic tuning PLL
IC14	AN7470	FM MPX IC	MPX demodulation
Q301	2SC1923 (R. O)	FM IF amplifier	10.7 MHz amplification
Q302	2SC945 (A) (Q, P) 2SC1740S (Q, R)	L.P.F	PLL L.P.F.
Q303	2SC1845 (F, E)	L.P.F	PLL L.P.F.
Q305	2SC945 (A), (Q, P) 2SC1740S (Q, R)	Emphasis selection	75 μsec at ON, and 50 μsec at OFF
Q306	2SC945 (A) (Q, P) 2SC1740S (Q, R)	Emphasis selection	
Q307	2SA733 (A) (Q, P) 2SA933S (Q, R)	FM/AM selection	Controlled by IC13. FM +B supply at ON
Q308	2SA733 (A) (Q, P) 2SA933S (Q, R)	FM/AM selection	Controlled by IC13. AM +B supply at ON
Q309	2SD1302 (S, T)	Mute switch	Operates in function selection.
Q310	2SD1302 (S, T)	Mute switch	Operates in function selection.
Q311	2SA733 (A) (Q, P) 2SA933S (Q, R)	Control	Controls Q309 and Q310 by signal from microprocessor.

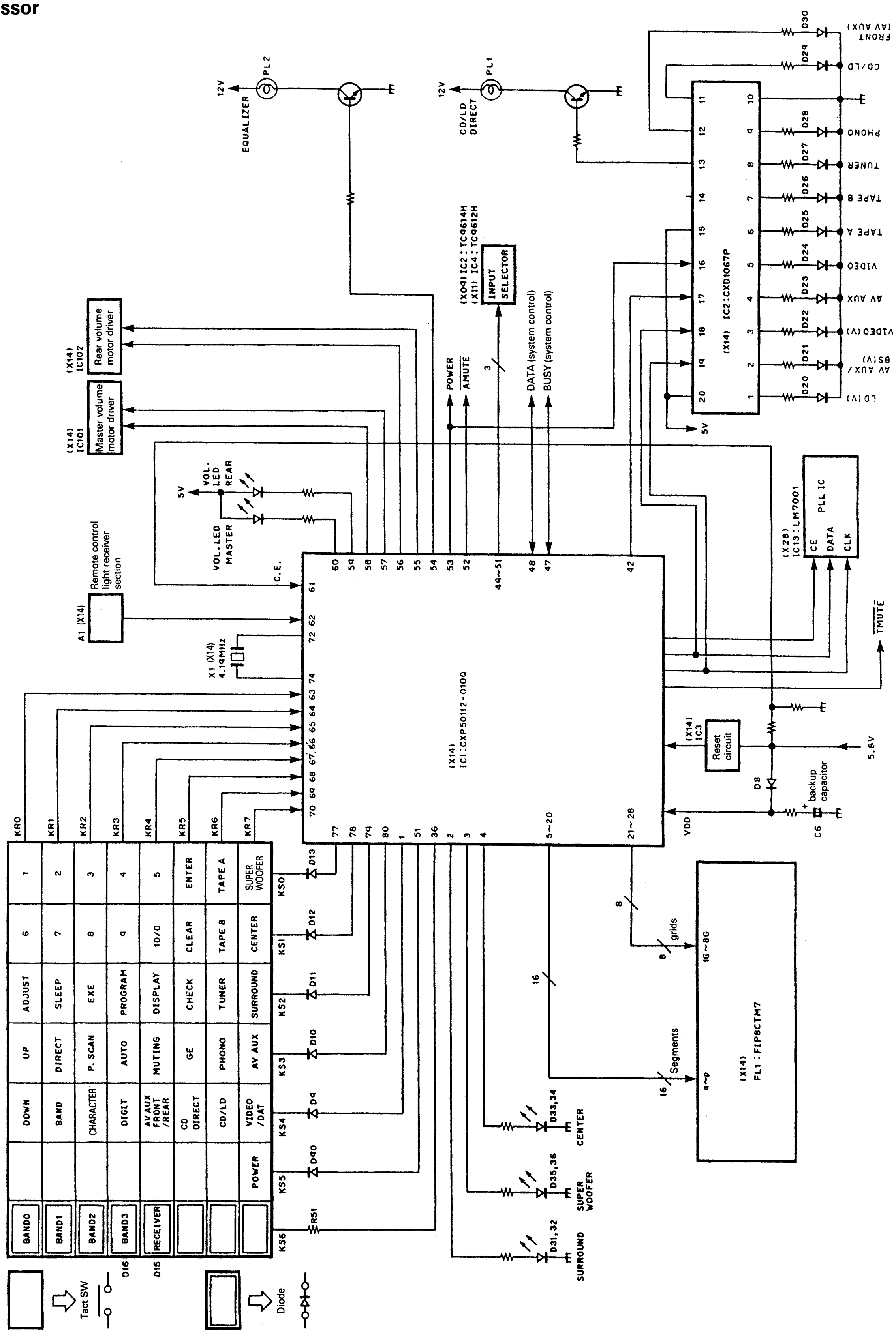
CIRCUIT DESCRIPTION

Total wiring diagram


(X14-2690-21) (A/4)
Display unit
CN1
34
E31-7144-05
CN2
CN103
W101
CN3
(X11-2760-00)(C/3)
Control unit
(X11-2760-00)(B/3)
Control unit
(X11-2760-00)(A/3)
Control unit
CN1
40
CN4
CN5
CN6
E31-7145-05
W6
W7
W8
(X14-2690-21) (B/4)
Display unit
PHONO
CDV
CD/
VIDEO/DAT
REC
PLAY
AV AUX
IN
SURROUND SPEAKERS
SUPER WOOFER
CENTER SPEAKER
(X09-3000-21) (A/5)
Audio unit
W105
CN6
CN101
W4
W18
W3
(X09-3000-21) (C/5)
Audio unit
CN10
CN9
CN4
16
E31-7393-05
W1
W2
(X28-2080-21)
Recording/playback amplifier and tuner unit
(X14-2690-21) (D/4)
Display unit
W203
(X14-2690-21) (C/4)
Display unit
W201
W202
ANTENNA
AM
GND
FM 300Ω
CN7
CN8
E31-7333-05
E31-7332-05
E31-7335-05
E31-7334-05
A MECHANISM (D40-0877-05)
B MECHANISM (D40-0878-05)
(X09-3000-21) (D/5)
Audio unit
T1
(X09-3000-21) (E/5)
Audio unit
(VISUAL) MONITOR
SYSTEM CONTROL
(VISUAL) REC PLAY VIDEO
IN CDV IN AV AUX
(X09-3000-21) (B/5)
Audio unit
AC OUTLET SWITCHED
AC INLET
F1 2.5A
F2 2.5A
W11 WHT 120V
W13 RED 0V
W14 YEL 120V
W12 BLU 0V
W10 BRN
TF

CIRCUIT DESCRIPTION

Blockdiagram of surrounding receiver microprocessor


(X14) IC1:CXP50112-010Q
(X14) IC2:CXD1067P
FRONT (AV AUX)
CD/LD
PHONO
TUNER
TAPE B
TAPE A
VIDEO
AV AUX
VIDEO (V)
AV AUX/BS(V)
CD(V)
D20
D21
D22
D23
D24
D25
D26
D27
D28
D29
D30
5V
12V
PL2
EQUALIZER
PL1
CD/LD DIRECT
(X09) IC2:TC9614H
(X11) IC4:TC9612H
INPUT SELECTOR
POWER
AMUTE
3
DATA (system control)
BUSY (system control)
(X14) IC102
Rear volume motor driver
(X14) IC101
Master volume motor driver
VOL. LED REAR
VOL. LED MASTER
C.E.
A1 (X14)
Remote control light receiver section
X1 (X14) 4.19MHz
(X28) IC13:LM7001
PLL IC
CE
DATA
CLK
TMUTE
(X14) IC3
Reset circuit
5.6V
D8
backup capacitor
C6
VDD
KR0
KR1
KR2
KR3
KR4
KR5
KR6
KR7
KS0
KS1
KS2
KS3
KS4
KS5
KS6
D13
D12
D11
D10
D9
D40
R51
KEY MATRIX
1
2
3
4
5
ENTER
TAPE A
SUPER WOOFER
6
7
8
9
10/0
CLEAR
TAPE B
CENTER
ADJUST
SLEEP
EXE
PROGRAM
DISPLAY
CHECK
TUNER
SURROUND
UP
DIRECT
P. SCAN
AUTO
MUTING
GE
PHONO
AV AUX
DOWN
BAND
CHARACTER
DIGIT
AV AUX FRONT /REAR
CD DIRECT
CD/LD
VIDEO /DAT
POWER
BAND0
BAND1
BAND2
BAND3
RECEIVER
D16
D15
Tact SW
Diode
D33,34
CENTER
D35,36
SUPER WOOFER
D31,32
SURROUND
8
grids
1G~8G
16
Segments
a~p
(X14) FL1:FIP8CTM7
60 59 58 57 56 55 54 53 52 49~51 48 47 42
61 62 72 74 63 64 65 66 67 68 69 70
77 78 79 80 1 51 36 2 3 4 5~20 21~28

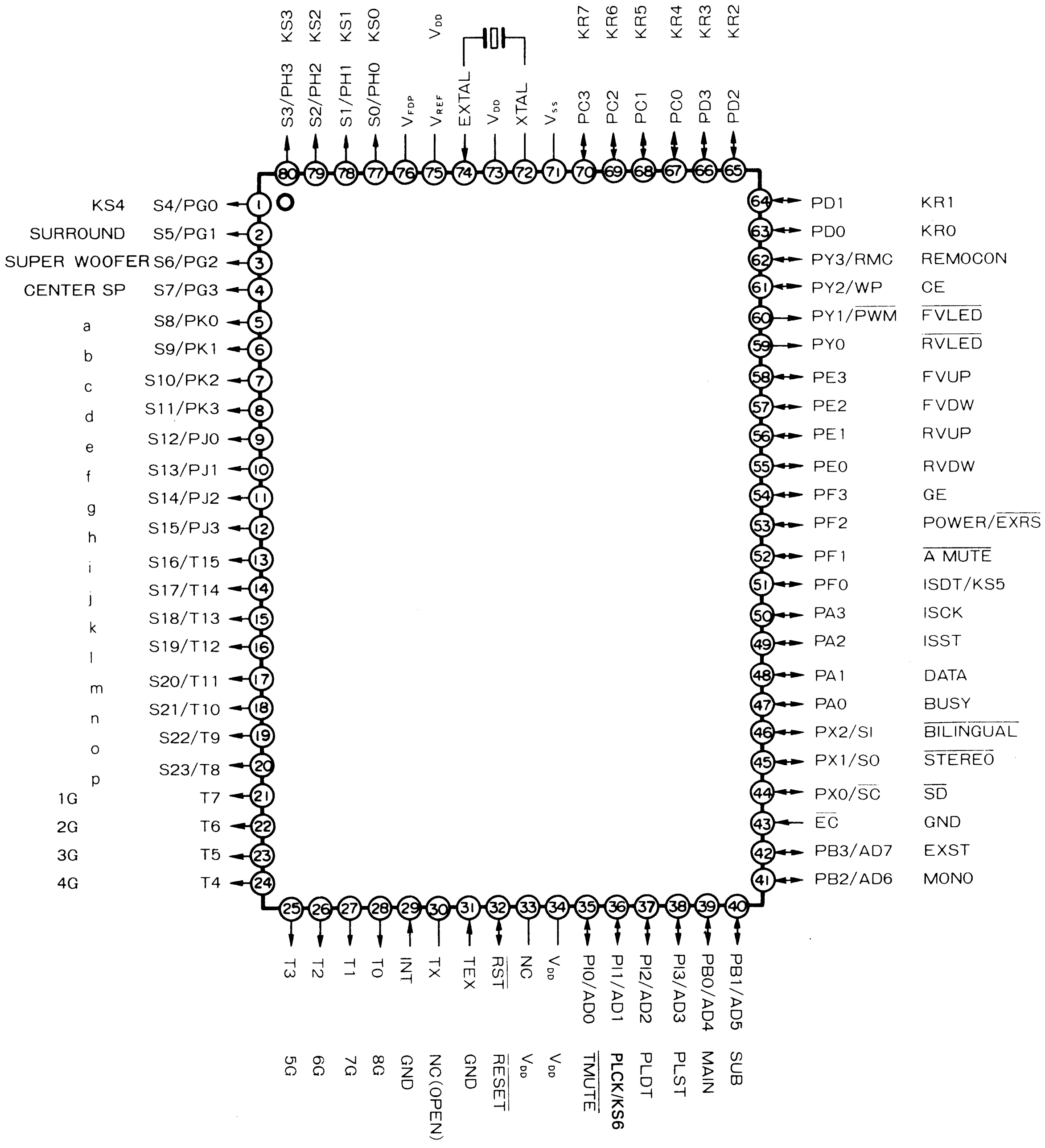
CIRCUIT DESCRIPTION

PLL Control Data Listing
IC13: LM7001 (X28)

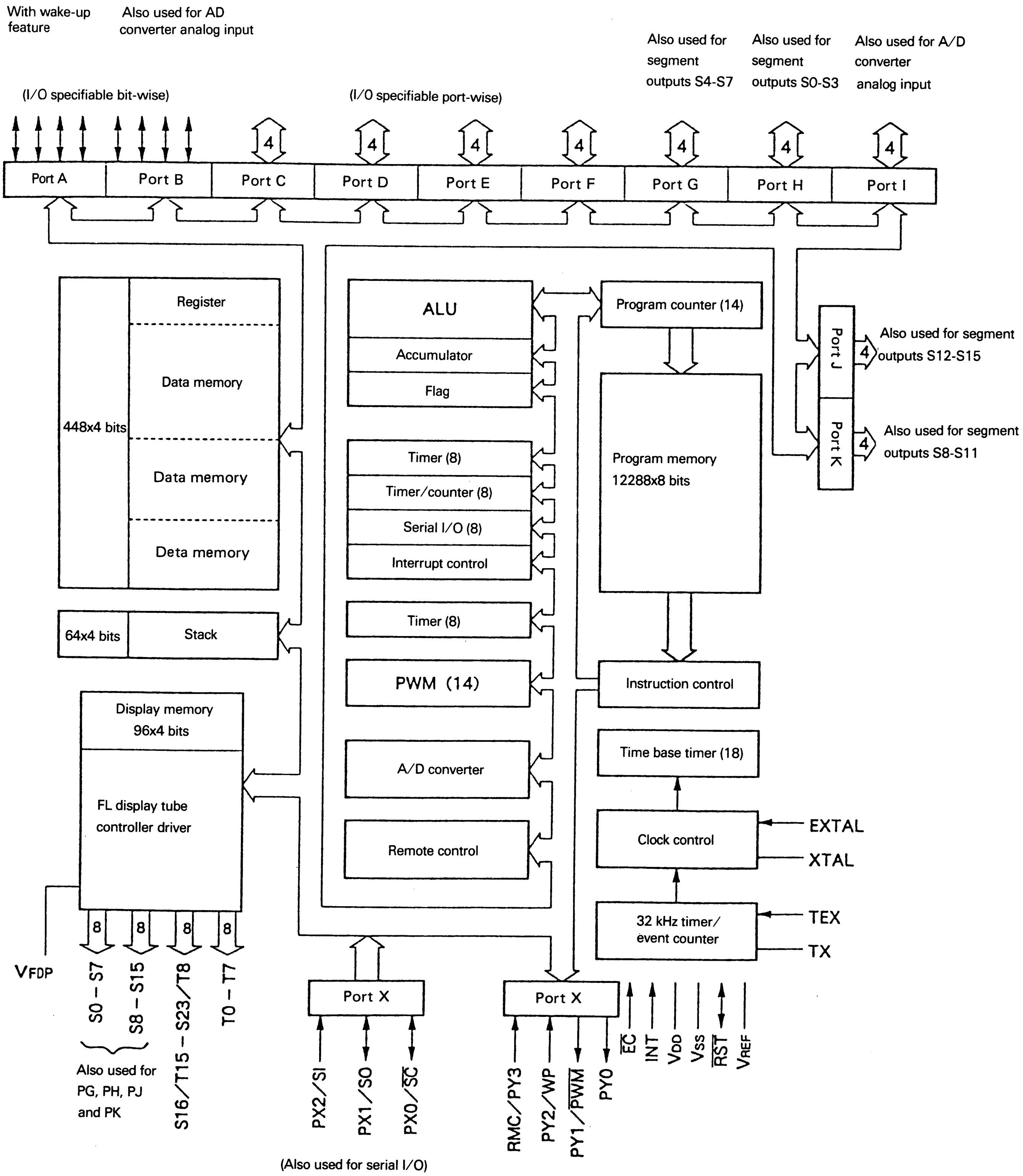
Band	Destination	Band setting diode SW 0, 1, 2, 3	Receive frequency range	Channel space	Local OSC frequency	PLL basic frequency	PLL input terminal	PLL port		
								⑦B01	⑧B02	⑨B03
FM	K	1 0 0 0	87.5 MHz ≀ 108.0 MHz	100 kHz	50 kHz	f + 10.7 MHz	FM IN	H	H	L
AM	K1	1 0 0 0	530 kHz ≀ 1610 kHz	10 kHz	10 kHz	f + 450 kHz	AM IN	H	L	H
	K2	1 0 1 0	530 kHz ≀ 1700 kHz							

CIRCUIT DESCRIPTION

IC1: CXP50112-010Q (X14-2690-21)
RECEIVER MICROPROCESSOR
Pin connections (top view)


KS3 S3/PH3 80
KS2 S2/PH2 79
KS1 S1/PH1 78
KS0 S0/PH0 77
V_{FDP} 76
V_{DD} V_{REF} 75
EXTAL 74
V_{DD} 73
XTAL 72
V_{SS} 71
KR7 PC3 70
KR6 PC2 69
KR5 PC1 68
KR4 PC0 67
KR3 PD3 66
KR2 PD2 65
KS4 S4/PG0 1
SURROUND S5/PG1 2
SUPER WOOFER S6/PG2 3
CENTER SP S7/PG3 4
a S8/PK0 5
b S9/PK1 6
c S10/PK2 7
d S11/PK3 8
e S12/PJ0 9
f S13/PJ1 10
g S14/PJ2 11
h S15/PJ3 12
i S16/T15 13
j S17/T14 14
k S18/T13 15
l S19/T12 16
m S20/T11 17
n S21/T10 18
o S22/T9 19
p S23/T8 20
1G T7 21
2G T6 22
3G T5 23
4G T4 24
25 T3 5G
26 T2 6G
27 T1 7G
28 T0 8G
29 INT GND
30 TX NC (OPEN)
31 TEX GND
32 RST RESET
33 NC V_{DD}
34 V_{DD} V_{DD}
35 PI0/AD0 TMUTE
36 PI1/AD1 PLCK/KS6
37 PI2/AD2 PLDT
38 PI3/AD3 PLST
39 PB0/AD4 MAIN
40 PB1/AD5 SUB
64 PD1 KR1
63 PD0 KR0
62 PY3/RMC REMOCON
61 PY2/WP CE
60 PY1/PWM FVLED
59 PY0 RVLED
58 PE3 FVUP
57 PE2 FVDW
56 PE1 RVUP
55 PE0 RVDW
54 PF3 GE
53 PF2 POWER/EXRS
52 PF1 A MUTE
51 PF0 ISDT/KS5
50 PA3 ISCK
49 PA2 ISST
48 PA1 DATA
47 PA0 BUSY
46 PX2/SI BILINGUAL
45 PX1/SO STEREO
44 PX0/SC SD
43 EC GND
42 PB3/AD7 EXST
41 PB2/AD6 MONO

CIRCUIT DESCRIPTION


With wake-up feature
Also used for AD converter analog input
(I/O specifiable bit-wise)
(I/O specifiable port-wise)
Also used for segment outputs S4-S7
Also used for segment outputs S0-S3
Also used for A/D converter analog input
4
Port A
Port B
Port C
Port D
Port E
Port F
Port G
Port H
Port I
Register
Data memory
448x4 bits
Data memory
Deta memory
64x4 bits
Stack
Display memory
96x4 bits
FL display tube
controller driver
ALU
Accumulator
Flag
Timer (8)
Timer/counter (8)
Serial I/O (8)
Interrupt control
Timer (8)
PWM (14)
A/D converter
Remote control
Program counter (14)
Program memory
12288x8 bits
Instruction control
Time base timer (18)
Clock control
32 kHz timer/
event counter
EXTAL
XTAL
TEX
TX
Port J
Port K
Also used for segment outputs S12-S15
Also used for segment outputs S8-S11
8
VFDP
S0 – S7
S8 – S15
S16/T15 – S23/T8
T0 – T7
Also used for PG, PH, PJ and PK
Port X
Port X
PX2/SI
PX1/SO
PX0/SC
(Also used for serial I/O)
RMC/PY3
PY2/WP
PY1/PWM
PY0
EC
INT
VDD
VSS
RST
VREF

CIRCUIT DESCRIPTION

Pin Functions

Pin No.	Pin name	I/O	Symbol	Description		
1	S4/PG0	O	KS4	Key scan output		H: ON L: OFF
2	S5/PG 1	O	SURROUND	Surround ON/OFF		H: ON L: OFF
3	S6/PG2	O	SUPER WOOFER	Superwoofer ON/OFF		H: ON L: OFF
4	S7/PG3	O	CENTER	Center output ON/OFF		H: ON L: OFF
5	S8/PK0	O	S8	FL segment output	a	H: ON L: OFF
6	S9/PK1	O	S9	FL segment output	b	H: ON L: OFF
7	S10/PK2	O	S10	FL segment output	c	H: ON L: OFF
8	S11/PK3	O	S11	FL segment output	d	H: ON L: OFF
9	S12/PJ0	O	S12	FL segment output	e	H: ON L: OFF
10	S13/PJ1	O	S13	FL segment output	f	H: ON L: OFF
11	S14/PJ2	O	S14	FL segment output	g	H: ON L: OFF
12	S15/PJ3	O	S15	FL segment output	h	H: ON L: OFF
13	S16/T15	O	S16	FL segment output	i	H: ON L: OFF
14	S17/T14	O	S17	FL segment output	j	H: ON L: OFF
15	S18/T13	O	S18	FL segment output	k	H: ON L: OFF
16	S19/T12	O	S19	FL segment output	l	H: ON L: OFF
17	S20/T11	O	S20	FL segment output	m	H: ON L: OFF
18	S21/T10	O	S21	FL segment output	n	H: ON L: OFF
19	S22/T9	O	S22	FL segment output	o	H: ON L: OFF
20	S23/T8	O	S23	FL segment output	p	H: ON L: OFF
21	T7	O	T7	FL grid output	G1	H: ON L: OFF
22	T6	O	T6	FL grid output	G2	H: ON L: OFF
23	T5	O	T5	FL grid output	G3	H: ON L: OFF

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Description
24	T4	O	T4	FL grid output G4 H: ON L: OFF
25	T3	O	T3	FL grid output G5 H: ON L: OFF
26	T2	O	T2	FL grid output G6 H: ON L: OFF
27	T1	O	T1	FL grid output G7 H: ON L: OFF
28	T0	O	T0	FL grid output G8 H: ON L: OFF
29	INT	I	INT	External interrupt pin... unused
30	TX	O	TX	Timer oscillation pin... unused
31	TEX	I	TEX	Timer oscillation pin... unused
32	$\overline{\text{RST}}$	I	RESET	Reset input H: Normal L: Reset
33	N.C.		N.C.	
34	VDD			Power supply pin
35	PI0/AD0	O	TMUTE	Tuner section mute output H: Mute OFF L: Mute ON
36	PI1/AD1	O	PLCK/KS6	Clock to PLL or extension IC, and key scan (for diode SW)
37	PI2/AD2	O	PLDT	Data output to PLL or extension IC
38	PI3/AD3	O	PLST	Chip enable output for PLL
39	PB0/AD4	O	PMAIN	TV sound MPX selection output
40	PB1/AD5	O	PSUB	TV sound MPX selection output
41	PB2/AD6	O	PMONO	Stereo/monaural selection H: Monaural L: Stereo
42	PB3/AD7	O	EXIO	Extension IC strobe signal
43	$\overline{\text{EC}}$	I	$\overline{\text{EC}}$	Event counter input... unused
44	PX0/$\overline{\text{SC}}$	I	$\overline{\text{SD}}$	Tuning signal input H: OFF L: Tuned
45	PX1/SO	I	$\overline{\text{ST}}$	Stereo signal input H: Monaural L: Stereo
46	PX2/SI	I	$\overline{\text{BIL}}$	Bilingual signal input H: Normal L: Bilingual
47	PA0	I/O	BUSY	System control busy
48	PA1	I/O	DATA	System control data
49	PA2	O	ISST	Input selector IC strobe output
50	PA3	O	ISCK	Input selector IC clock output
51	PF0	O	ISDT/KS5	Input selector IC data/key scan
52	PF1	O	$\overline{\text{AMUTE}}$	Amplifier section mute output H: Mute OFF L: Mute ON
53	PF2	O	POWER/$\overline{\text{EXRS}}$	Power control/extension IC reset output H: ON (reset OFF) L: OFF (reset ON)
54	PF3	O	GE	Graphic equalizer display output H: GE ON L: GE OFF

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Description	
55	PE0	O	RVDW	Rear volume down	H: Down L: —
56	PE1	O	RVUP	Rear volume up	H: Up L: —
57	PE2	O	FVDW	Master volume down	H: Down L: —
58	PE3	O	FVUP	Master volume up	H: Up L: —
59	PY0	O	$\overline{\text{RVLED}}$	Rear volume LED	H: OFF L: ON
60	PY1	O	$\overline{\text{FVLED}}$	Master volume LED	H: OFF L: ON
61	PY2	I	C.E.	AC ON/OFF detection input	H: ON L: OFF
62	PY3	I	RMCN	Remote control input	
63	PD0	I	KR0	Key return input	H: With input L: Without input
64	PD1	I	KR1	Key return input	H: With input L: Without input
65	PD2	I	KR2	Key return input	H: With input L: Without input
66	PD3	I	KR3	Key return input	H: With input L: Without input
67	PC0	I	KR4	Key return input	H: With input L: Without input
68	PC1	I	KR5	Key return input	H: With input L: Without input
69	PC2	I	KR6	Key return input	H: With input L: Without input
70	PC3	I	KR7	Key return input	H: With input L: Without input
71	VSS	—		GND pin	
72	XTAL	O	XTAL	For oscillator	
73	N.C.				
74	EXTAL	I	EXTAL	For oscillator	
75	V_{REF}			For voltage detection reset... unused	
76	V_{FDP}		V_{FDP}	FL terminal pull-down resistor power supply	
77	S0/PH0	O	KS0	Key scan output	H: ON L: OFF
78	S1/PH1	O	KS1	Key scan output	H: ON L: OFF
79	S2/PH2	O	KS2	Key scan output	H: ON L: OFF
80	S3/PH3	O	KS3	Key scan output	H: ON L: OFF

CIRCUIT DESCRIPTION

IC2: CXD1067P (X14-2690-21) I/O extension IC

Pin Function

Pin No.	Pin name	I/O	Symbol	Description		
1	P1	O	CD (V)	Video	CD display	H: ON L: OFF
2	P2	O	AUX (V)	Video	AUX display	H: ON L: OFF
3	P3	O	VIDEO (V)	Video	VIDEO display	H: ON L: OFF
4	P4	O	AV AUX	Audio	AV/AUX display	H: ON L: OFF
5	P5	O	VIDEO	Audio	VIDEO display	H: ON L: OFF
6	P6	O	TAPE A	Audio	TAPE A display	H: ON L: OFF
7	P7	O	TAPE B	Audio	TAPE B display	H: ON L: OFF
8	P8	O	TUNER	Audio	TUNER display	H: ON L: OFF
9	P9	O	PHONO	Audio	PHONO display	H: ON L: OFF
10	V_{SS}			GND pin		
11	P10	O	CD/LD	Audio	CD/LD display	H: ON L: OFF
12	P11	O	F/R	AV AUX	FRONT display	H: Front L: Rear
13	P12	O	CD DIR	CD DIRECT display		H: ON L: OFF
14	SO	O	SO	Serial data output... unused		
15	$\overline{\text{SET}}$	I	$\overline{\text{SET}}$	Port all set input... unused		
16	$\overline{\text{RESET}}$	I	$\overline{\text{RESET}}$	Port all reset input		H: — L: Reset
17	STB	I	STB	Strobe input		
18	DATA	I	DATA	Data input		
19	CLK	I	CLK	Clock input		
20	VDD			Power supply pin		

CIRCUIT DESCRIPTION

Initial State

(1) Tuner section

Power .... OFF
Last band .... FM or FM1
Last channel ..... Lower limit of any band, with station name portion blanked (band name display)
Last preset channel .... "—" display
Preset memory .... Test frequencies occurring on a separate table are set as FM, FM1 and AM.
Auto/mono .... Any band in auto mode
Display .... F display mode
Others .... All OFF

(2) Calendar, day timer and timer section

Calendar and day timer ...... Jan. 1 (Sunday) of 1989, 0:00 power failure mode
Program timer .... ON: Sunday 0:00
OFF: ... 0:00
Band: FM or FM1
P-ch: 1-ch
Execution mode: OFF
Sleep timer .... OFF

(3) Amplifier section

Power .... OFF
Input selector .... Tuner
Video selector .... Video
Muting .... OFF
CD direct .... OFF
Graphic equalizer .... OFF
Surround .... OFF
Superwoofer .... OFF
Center speaker .... OFF

Test mode

Band	Destination P-ch	K
FM (FM1)	1	87.5 MHz
	2	89.1 MHz
	3	90.0 MHz
	4	92.0 MHz
	5	94.0 MHz
	6	98.0 MHz
	7	100.1 MHz
	8	102.0 MHz
	9	106.0 MHz
	10	108.0 MHz
AM	1	530 kHz
	2	630 kHz
	3	990 kHz
	4	1440 kHz
	5	1610 kHz
	6	(1700 kHz)

Test mode

(a) ALL lit, test F setting

(1) Setting method
Turn AC ON while pressing the ADJUST key or the CD key.

(2) Contents
- Power ON
- FL all lit, test frequency setting
- Amp. section display, all lit
  Input selector (F/R included)
  Video selector
  GE
  CD direct
  Surround
  Super woofer
  Center speaker
- Volume simultaneous operation
  Rear volume runs in reesponse to the main volume up/down operation by the remote control.

CIRCUIT DESCRIPTION

(3) Canceling method
The FL all lit state is canceled due to a numeral key, band key or power key.
The amplifier section display is canceled due to the input selector, GE or CD DIRECT key.
However, the volume simultaneous operation is cleared due to AC OFF.

(b) Deck test mode

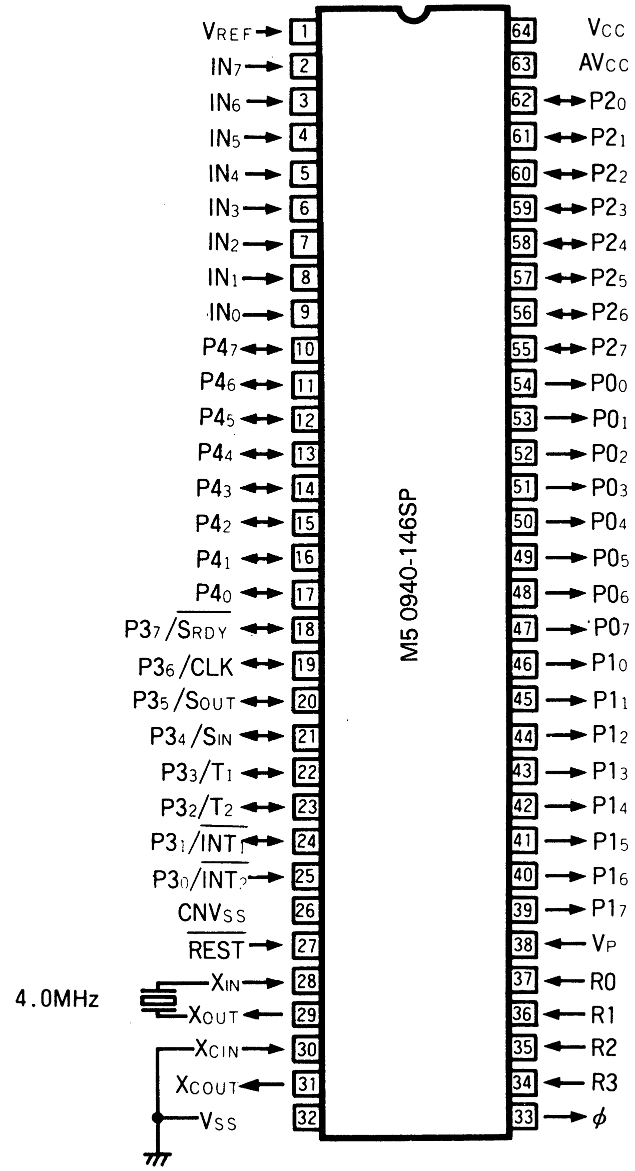
(1) Setting method
Turn AC ON while pressing the TAPE B key.

(2) Contents
- Connect the LINE OUT terminal of the deck section to the PB IN terminal of the video.
- Connect the REC IN terminal of the deck section to the REC OUT terminal of the video. Therewith, it is possible to perform adjustment and checking of the deck section through a video pin jack.
- At this time, any serial code from the deck is ignored.

(3) Canceling method
- Press the input selector.

CIRCUIT DESCRIPTION

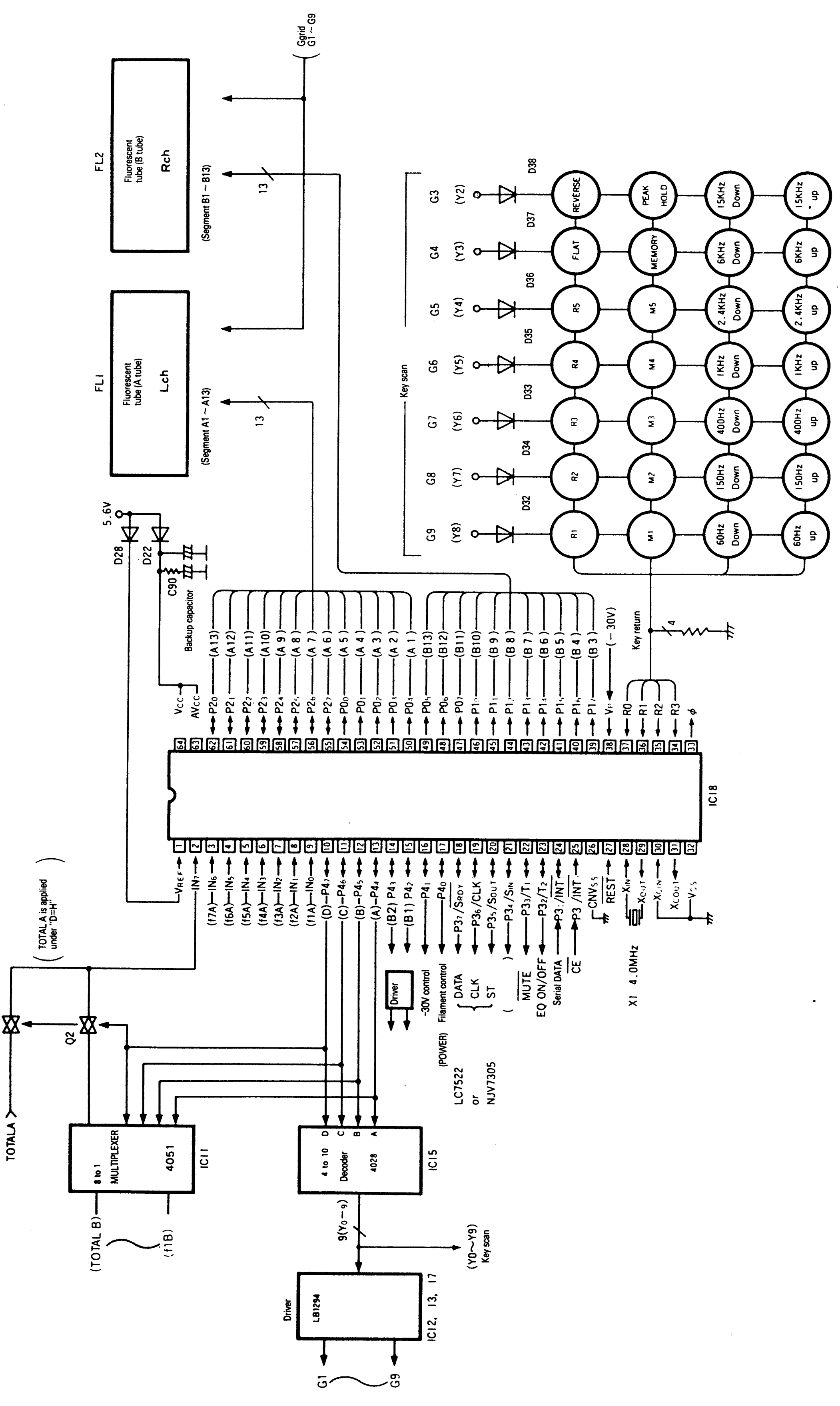
IC18 (X11-2760-00): M50940-146SP
Graphic equalizer microprocessor


M5 0940-146SP
VREF 1
IN7 2
IN6 3
IN5 4
IN4 5
IN3 6
IN2 7
IN1 8
IN0 9
P47 10
P46 11
P45 12
P44 13
P43 14
P42 15
P41 16
P40 17
P37/SRDY 18
P36/CLK 19
P35/SOUT 20
P34/SIN 21
P33/T1 22
P32/T2 23
P31/INT1 24
P30/INT2 25
CNVSS 26
REST 27
XIN 28
XOUT 29
XCIN 30
XCOUT 31
VSS 32
4.0MHz
64 VCC
63 AVCC
62 P20
61 P21
60 P22
59 P23
58 P24
57 P25
56 P26
55 P27
54 P00
53 P01
52 P02
51 P03
50 P04
49 P05
48 P06
47 P07
46 P10
45 P11
44 P12
43 P13
42 P14
41 P15
40 P16
39 P17
38 VP
37 R0
36 R1
35 R2
34 R3
33 φ

CIRCUIT DESCRIPTION

IC18 (X11-2760-00): M50940-146SP

Graphic equalizer microprocessor


Ggrid G1 ~ G9
FL2
Fluorescent tube (B tube)
Rch
(Segment B1 ~ B13)
13
FL1
Fluorescent tube (A tube)
Lch
(Segment A1 ~ A13)
5.6V
D28
D22
C90
Backup capacitor
Key scan
G3 (Y2) D38 REVERSE PEAK HOLD 15KHz Down 15KHz up
G4 (Y3) D37 FLAT MEMORY 6KHz Down 6KHz up
G5 (Y4) D36 R5 M5 2.4KHz Down 2.4KHz up
G6 (Y5) D35 R4 M4 1KHz Down 1KHz up
G7 (Y6) D33 R3 M3 400Hz Down 400Hz up
G8 (Y7) D34 R2 M2 150Hz Down 150Hz up
G9 (Y8) D32 R1 M1 60Hz Down 60Hz up
Key return
4
(−30V)
IC18
VREF
IN7
TOTAL A is applied under "D=H"
Q3
Q2
TOTALA
8 to 1 MULTIPLEXER 4051
IC11
(TOTAL B)
(11B)
4 to 10 Decoder 4028
IC15
9(Y0~9)
(Y0~Y9) Key scan
Driver LB1294
IC12, 13, 17
G1
G9
Driver
-30V control
Filament control
(POWER)
DATA
CLK
ST
LC7522 or NJV7305
MUTE
EQ ON/OFF
Serial DATA
CE
X1 4.0MHz
CNVSS
REST
XIN
XOUT
XCIN
XCOUT
VSS

CIRCUIT DESCRIPTION

Pin Description

Pin No.	Pin name	I/O	Name	Description
1	VREF			Power supply for A/D converter (5V).
2	IN7	I		A/D input for multiplexer and L-ch TOTAL signal.
3~9	IN6~IN8	I	f7A~f1A	A/D input of L-ch.
10~13	P47~P44	O	D~A	Control for multiplexer and 4 to 10 decoder.
14, 15	P43, P42	O	B2, B1	Drive for R-ch segments.
16	P41	O		Control power supply for indicator (—30 V) L: ON, H: OFF.
17	P40	O		Control power supply for filament of Indicator L: OFF, H: ON.
18	P37	O	DATA	Data terminal for LC722.
19	P36	O	CLK	Clock terminal for LC722.
20	P35	O	ST	ST terminal for LC722.
21	P34	O		No use.
22	P33	O	$\overline{\text{MUTE}}$	Control mute when power is ON/OFF and EQ is ON/OFF L: ON, H: OFF.
23	P32	O	EQ ON/OFF	Control EQ circuit L: OFF, H: ON.
24	P31	I	S. DATA	Synchro-data input.
25	P30	I	$\overline{\text{CE}}$	Detection of Backup L: BACKUP.
26	CNVSS			Mode change in microprocessor. (GND)
27	$\overline{\text{RESET}}$			Reset terminal L: RESET.
28, 29	XIN, XOUT			System clock terminal (4 MHz).
30, 31	XCIN, XCOUT			No use.
32	Vss			GND of power supply.
33	ϕ			1/4-divider of system clock (no use).
34~37	R3~R0	I		Key inputs.
38	VP			Pull-down power supply (—30 V).
39~49	P17~P05	O	B3~B13	Drive segments (3~13) of R-ch.
50~62	P04~P20	O	A1~A13	Drive segments (3~13) of L-ch.
63	AVcc			Power supply for A/D converter (5 V).
64	Vcc			Power supply for microprocessor (5 V).

<TEST MODE>

1. Insert AC plug to the power supply under pressing FLAT key.

2. Confirm the following checks.

2-1. At first, all of segments turn on.

2-2. MAX segments (+12 dB) of all frequency turn on when pressing M-2 key.

2-3. Min segments (—12 dB) of all frequency turn on when pressing M-3 key.

2-4. 3 points (+12 dB, 0 dB, —12 dB) of segments turn on in all frequency when UP or DOWN key is pressed.

3. Pull the AC plug out when power switch on (reset).

CIRCUIT DESCRIPTION

<Reference Memory>

During calling one of R1-R5, when CCRS is performed, the same GE effect can be obtained even from the double-speed CCRS.
However, the double-speed CCRS provides some GE effect up to 7.5 kHz. Higher than that, no GE effect is given with flat response of output.

1) At start of sampling (Double-speed sampling is made even for either normal-speed CCRS or double-speed CCRS.)
   The curve for double-speed is called and then displayed.

2) At start of recording (after CCRS recording start)

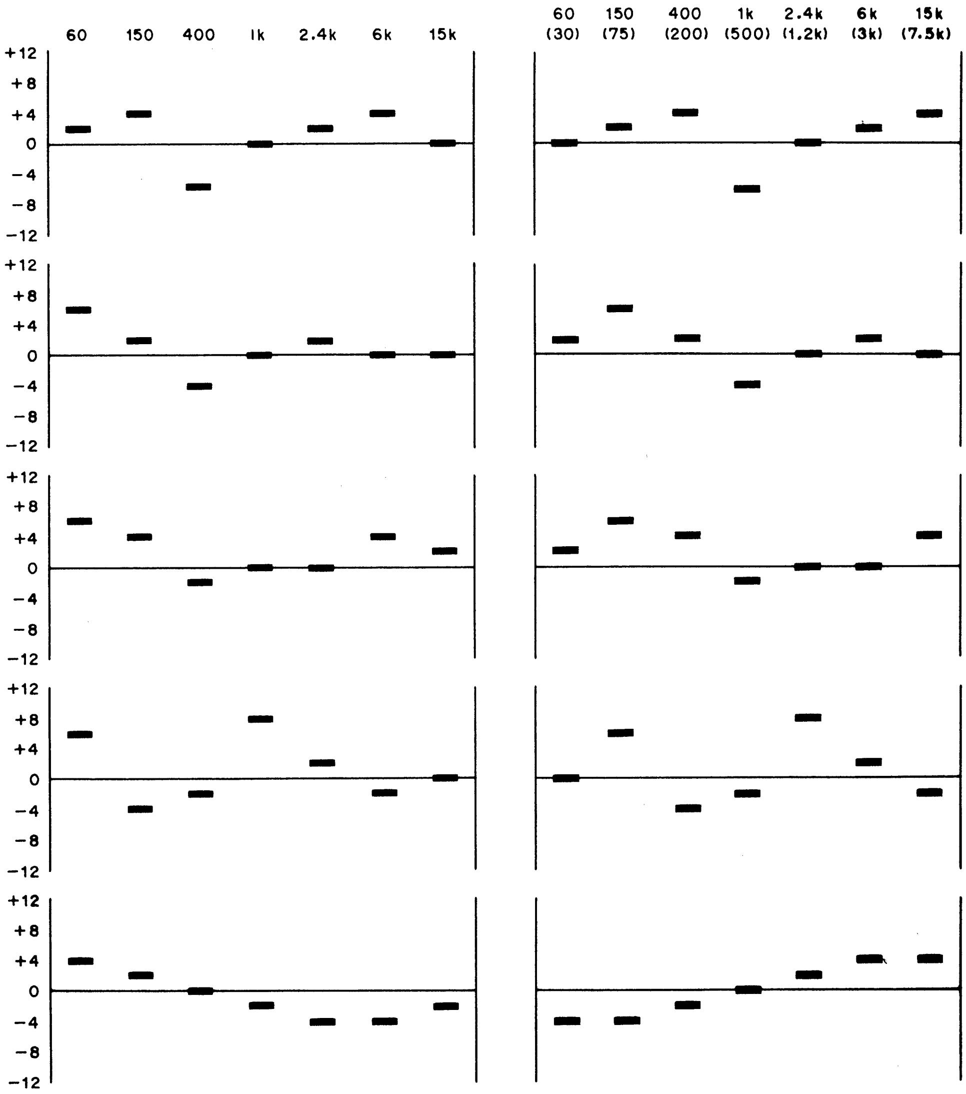
RX-53 speed mode switch	ON	Curve for double-speed is called and then displayed.
	OFF	Curve for normal-speed is called and then displayed.

3) At stop (when CCRS is canceled)
   The curve for normal-speed is called and then displayed.

Note: The above operation has nor elation with the GE ON/OFF switch of the amplifier section.

Reference Memory List

- For double-speed CD sampling or for double-speed CCRS, a curve as shown below varies automatically.



CIRCUIT DESCRIPTION

Graphic equalizer's spectrum analyzer display signal circuit:

Operation

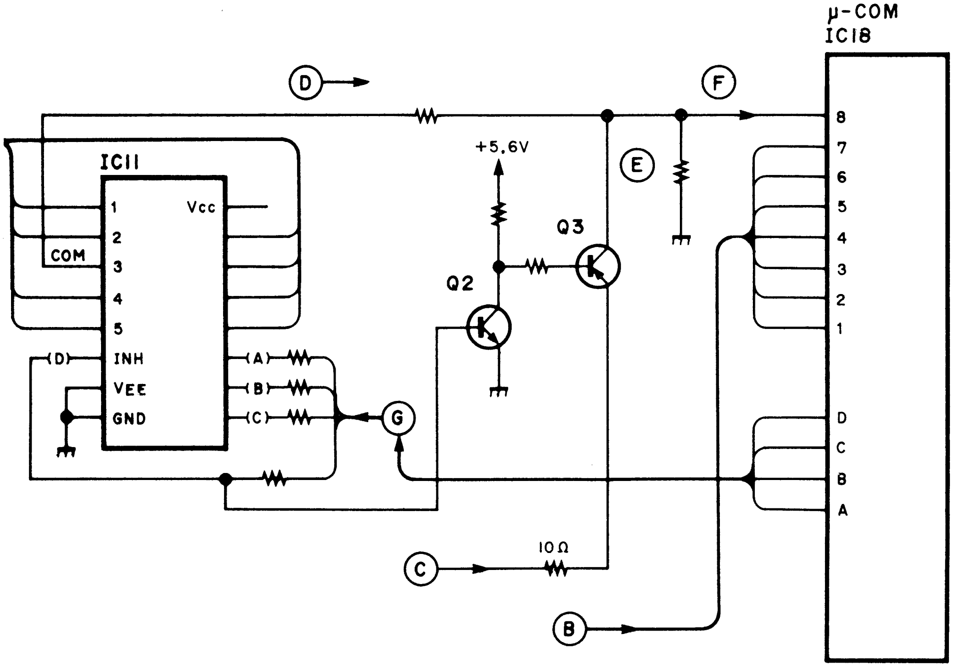
This circuit is designed to be capable of the L-channel total display, L-channel f1-f7, the R-channel total display, and R-channel f1-f7 by one microprocessor.

In addition, the signal (f1-f7) of R-channel Ⓑ is entered to the A/D converter section of the microprocessor. (At this point, there occurs no problem if the total can also be input...) The input port is of 8 channels. That 8th channel is used for the L-channel or R-channel total.

The 4-bit data Ⓖ from the microprocessor enters to IC11, L-channel f1-f7 are each switched and the signal for each frequency is output to Ⓓ. At this time, Q2 is OFF so that the signal Ⓔ is not output.

When the fourth bit (D) of the 4-bit signal Ⓖ from the microprocessor becomes "H", the signal Ⓓ from the COM pin of IC11 turns OFF (open) and at the same time Q2 turns ON so that the signal Ⓒ is output to Ⓔ.

Thus, the signal Ⓕ is input to the microprocessor in the order of L-channel f1-f7, L-channel total and R-channel total.



Signal names

Ⓐ L-channel f1-f7, L-channel total
Ⓑ R-channel f1-f7
Ⓒ R-channel total only
Ⓓ Switched signal of each of f1-f7 of Ⓐ Pin 3 of IC11.
Ⓔ Signal from Q3's ON/OFF of signal Ⓒ
Ⓕ Ⓓ+Ⓔ
Ⓖ IC11 controlling 4-bit data from microprocessor IC18

CIRCUIT DESCRIPTION

CASSETTE DECK MICROPROCESSOR OPERATION SPECIFICATION

1. FUNCTION OUTLINE

1-1 Used microprocessor

① **μPD75112CW-031**

A control master microprocessor, which controls over the cassette mechanism, the recording/playback circuit, the electronic VR unit (TC9213P) and the slave microprocessor (μPD7537ACU-214).

② **Slave microprocessor (μPD7537ACU-214)**

Used for control of key input and FL display tube.

1-2 Functions

① Either deck A or deck B performs each operation of forward play (FWD PLAY), reverse play (RVS PLAY), fast forwarding (FF), rewinding (REW), recording (REC), recording pause (REC PAUSE), play pause (PLAY PAUSE), and stop (STOP) by their corresponding seven keys.

② **Dubbing**

The normal dubbing or high-speed dubbing from deck A to deck B is feasible by use of the DUBBING key or HI-DUBBING key.

③ **DPSS mode**

Each operation of skip music scan, one-tune repeat, dash & play, full repeat, rewind play, re-recording standby, and auto recording mute is performed by the double pressure of its corresponding key or by a key operation during the operation mode.

④ **Timer operation**

Timer recording or timer play is feasible by timer switch setting.

⑤ **Auto bias**

The 400 Hz and 10 kHz recording/play levels are detected to set the optimum bias of that tape. (NOR. CrO_2 TAPE)

⑥ **CCRS**

By combined use with RX-53, and DP-530, recording is automatically feasible at an optimum level and an optimum bias from a CD player.

⑦ **Serial communications**

By combined use with a system provided with a serial communication bus, synchronous recording is feasible with a CD player or turntable through full remote control and two-way image operation.

⑧ **Backup**

Recording VR levels are backed up by running directions of deck and recording sources.

a) As to the running direction of a deck, that in final play or recording is backed up.

b) Recording VR levels are backed up by recording sources. When the recording VR key is pressed, when the recording VR level is changed, the recording VR data of the then selected source is newly written appropriately.
As to the recording source, the source then entered to the amplifier's selector memory of the deck is selected. Thus, at power ON, the tuner is selected as the recording source. After that, that selected by the amplifier's selector is engaged as the recording source.
When the amplifier's selector is set to TAPE A or TAPE B, the rewriting and backup of the recording VR level data is not accepted.

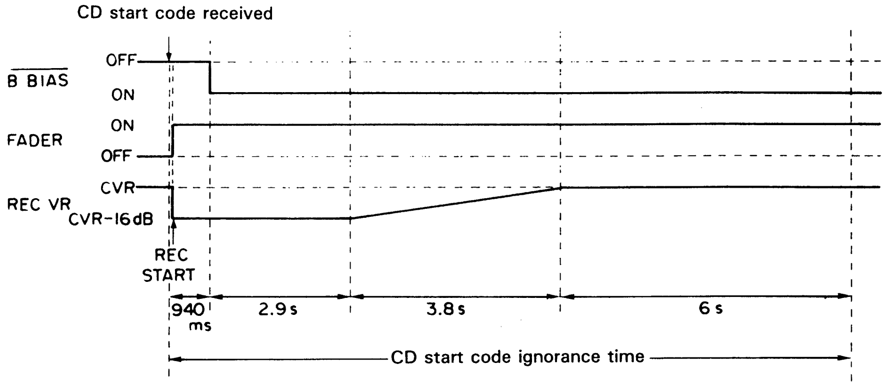
⑨ **MPX auto ON/OFF**

When the amplifier's selector memory of the deck refers to the tuner, the MPX ON/OFF pin (pin 35) turns ON in the recording mode. In the normal operation or in the recording mode, when the selecter is set to other than the tuner, this pin turns OFF.

⑩ **X. FADE**

The timing chart for between B BIAS (pin 43), FADER (pin 27) and the recording VR level is as follows (See next page):

CIRCUIT DESCRIPTION


CD start code received
B BIAS
OFF
ON
FADER
ON
OFF
REC VR
CVR
CVR-16dB
REC START
940 ms
2.9 s
3.8 s
6 s
CD start code ignorance time

2. KEY FUNCTIONS

2-1 Key matrix

Slave microprocessor (μPD7537ACU-214): Subject to control by each switch on the front panel.

Return / Scan	KR1	KR2	KR3	KR4	NC
1G (KS1)		S223 DOLBY C	S224 ⊐	S224 ⇄	S224 ⟲
2G (KS2)		S223 DOLBY B	S222 T.REC	S222 T.PLAY	S222 TIMER OFF
3G (KS3)	S215 B FF ▷▷	S217 B FWD ▷	S219 B REC O/◇	S221 B STOP □	
4G (KS4)	S214 B REW ◁◁	S216 B RVS ◁	S218 B PAUSE II	S220 X.FADE	
5G (KS5)	S202 C. RESET	S201 DISPLAY		S213 REC LEVEL UP	
6G (KS6)	S209 CCRS	S210 AUTO BIAS	S211 HI-DUBB	S212 NOR DUBB	
7G (KS7)	S204 A FF ▷▷	S206 A FWD ▷	S207 A STOP □	S208 REC LEVEL DOWN	
8G (KS8)	S203 A REW ◁◁	S205 A RVS ◁			
NC		S223 DOLBY OFF			

Master microprocessor (μPD75112CW-031): Subject to control by each switch information from the cassette mechanism.

Return / Scan	KR1	KR2	KR3	KR4
KS1			HALF (A)	
KS2		RVS REC (B)	HALF (B)	FWD REC (B)
KS3	TEST 1	TEST 2	W/S REC	

CIRCUIT DESCRIPTION

Key Name	Function	Display
FWD PLAY ▶ (Commom for A and B)	Provided that a cassette is present, this key activates playback in FWD direction. Pressing the key during FWD playback activates 1-program repeat. This key is inhibited while the other deck is in the REC or REC PAUSE mode.	Counter of the deck of which the key is pressed.
RVS PLAY ◀ (Common for A and B)	Provided that a cassette is present, this key activates playback in RVS direction. Pressing the key during RVS playback activates 1-program repeat. This key is inhibited while the other deck is in the REC or REC PAUSE mode.	Counter of the deck of which the key is pressed.
FF ▶▶ (Common for A and B)	Winds tape to the right reel. Pressing the key during playback activates skip search. Pressing the key during RVS recording activates Re-Rec Standby.	Counter of the deck of which the key is pressed.
REW ◀◀ (Common for A and B)	Winds tape high speed to the left reel. Pressing the key during playback activates skip search. Pressing the key during FWD recording activates Re-Rec Standby.	Counter of the deck of which the key is pressed.
STOP ■ (Common for A and B)	Interrupts any operation and stops tape.	
REC/ARM ●/♦ (B only)	Starts recording in the current head direction. Pressing the key during recording activates ARM.	Counter of the deck of which the key is pressed. The REC indicator (●) lights up. It blinks during ARM, and lights steadily after its end (▮▮●).
PAUSE ▮▮ (B only)	Changes the mode from REC to REC PAUSE, or from PLAY to PLAY PAUSE.	The PAUSE indicator lights (▮▮)
REC LEVEL UP	Increments the recording level from $-\infty$ to 0 in 1 dB steps. Holding the key for more than 0.35 second increases the level in 0.12 second intervals.	ex) The previous display resumes 5 seconds after the key is released -- 5dB
REC LEVEL DOWN	Decrements the recording level from 0 to $-\infty$ in 1 dB steps. Holding the key for more than 0.35 second decreases the level in 0.12 second intervals.	ex) -- 17dB
AUTO BIAS (B only)	Activates auto-bias adjustment provided that a recordable cassette is inserted.	The lighting REC indicator goes off, the AUTO BIAS indicator blinks, and it lights steadily after completion of setting.
CCRS (B only)	In interlocked operation with the CD player, adjusts the CD recording level automatically.	The CCRS indicator blinks at high speed. It blinks at low speed during edit recording after completion of setting.
NOR SPEED DUBBING	Starts normal speed dubbing from A→B. Pressing the key during normal dubbing activates ARM on Deck B, and pressing the key again resumes normal dubbing.	The DUBB, NOR and (B)REC (●) indicators light. During ARM, only the (B)REC indicator blinks.
HIGH SPEED DUBBING	Starts high-speed dubbing from A→B. Pressing the key during high-speed dubbing activates ARM on Deck B.	The DUBB, HIGH and (B)REC (●) indicators light. During ARM, only the (B)REC indicator blinks.
DISPLAY	Switches the content of the FL counter display as follows: → A counter → B counter → REC SOURCE ↩ Pressing the key during REC LEVEL display resumes the previous display.	TUNER SOURCE (TAPE A during dubbing)

CIRCUIT DESCRIPTION

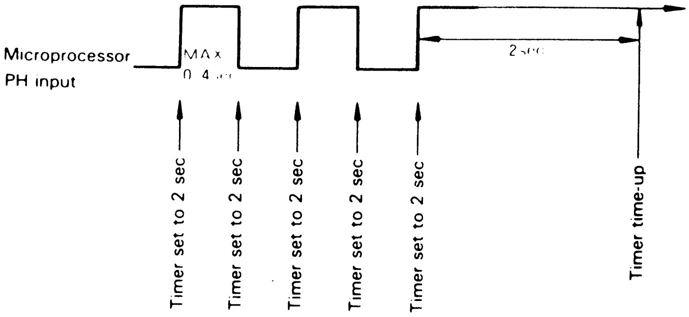
Key Name	Function	Display
C RESET	Pressing the key during counter display resets the counter to 0000.	A 0000
DIRECTION SW	Selects one of the following operations to be executed at the time of auto-stop detection. ⇄ ... One-way ⊃ ... Reverse ↻ ... Endless	
TIMER START SW	Sets the operation mode to be performed at Power ON. PLAY . Playback, provided that a cassette is inserted (priority on Deck A). OFF ... Not started. REC ... Recording, provided that a cassette is inserted	
DOLBY SW	Sets the Dolby NR mode. B ...... Dolby ON, B type. OFF ... Dolby OFF. C ...... Dolby ON, C type.	
CASSETTE DETECT SW	Turns ON when a cassette shell is present. While this switch is OFF, the keys of the deck and the DUBBING key are inhibited. In case of Deck B, the AUTO BIAS and CCRS keys are also inhibited.	ex) Display when cassette is not present in Deck A A -- -- -- --
FWD REC PERMIT SW	Turns ON when recording permission tab for FWD direction is present. Recording in the FWD direction is inhibited while this SW is OFF.	
RVS REC PERMIT SW	Turns ON when recording permission tab for RVS direction is present. Recording in the RVS direction is inhibited while this SW is OFF.	
X. FADE (B ONLY)	For CCRS, recording is made overlapping between tunes.	FADE Five seconds later, display returns to before.

Function	Key names	Description
REWIND PLAY	◀◀+▶ or ▶▶+◀	Tape rewinds until the end, the first program is searched, and playback is started as soon as it is detected.
DASH & PLAY	◀◀+▶▶	When a portion without recorded program has lasted for more than 10 seconds during playback, cueing is started, and playback resumes from the position where the beginning of the next program is detected. The full-repeat function can be used according to the Reverse Mode SW setting. ⇄ .... One-side full repeat × 8 times ⊃ .... Two-side full repeat × 8 times (16 sides) ↻ .... Two-side relay repeat × 29 to 31 sides in total on A and B. If cassette is not present in one deck, playback ends at the RVS end (i.e. after 1 or 2 times).
ZERO STOP	◀◀+■ or ▶▶+■	Tape is rewound or fast forwarded until the counter reading of 0000, where it is stopped. However, when the zero-stop operation of a deck has been activated, the simultaneous zero-stop operation of the other deck can be started by switching the counter display for the other deck and pressing the keys for the deck.

CIRCUIT DESCRIPTION

3 FUNCTION DETAILS

3-1 Auto stop



In a tape travel status other than STOP, REC PAUSE and PLAY PAUSE, when the signal from the photo-reflector attached to the mechanism reel stand keeps "H" or "L" for more than 2 sec the tape stops or the head is reversed.
As shown above, each time that the output of the photo-reflector attached to the rear side of the reel stand is reversed, the software timer of which the set time is 2 sec is started. When the reel stand is rotating, that is when the output of the photo-reflector is reversed within 2 sec, the timer is successively updated so that the timer does not stop.
When the output of the photo-reflector keeps a fixed value for more than 2 sec the timer operates. Then, this operation is detected and the auto stop process is performed.

3-2 Timer Function

When the power is turned ON with the timer switch set to PLAY or REC position, the designated operation starts after the initial delay period (approx. 4 seconds).

In timer recording mode, approx. 1.5 seconds after the power is turned ON, the "TUNER PLAY" 28 H signal is output to set the input selector of the amplifier to TUNER.

Timer operation sequence table

Condition				TIMER SW		
Cassette in deck A	Cassette in deck B	Safety tab of cassette A	Safety tab of cassette B	T. PLAY	T. REC [⇄ or ⊐]	T. REC [⟲]
×	×	/	/	/	/	/
○	×	○	/	A. PLAY	/	/
○	×	×	/	A. PLAY	/	/
×	○	/	○	B. PLAY	B. REC	B. REC
×	○	/	×	B. PLAY	/	/
○	○	○	○	A. PLAY	B. REC	B. REC
○	○	○	×	A. PLAY	/	/
○	○	×	○	A. PLAY	B. REC	B. REC
○	○	×	×	A. PLAY	/	/

○: Available ×: Not available /: Not concerned

3-3 Relay play

(1) With the reverse mode switch set to ⇄ or ⊐ and cassettes loaded in both decks, when the deck in play reaches the tape end, the other deck starts play.

i)⇄: When the deck in play reaches the end of that side of the tape, this deck rewinds the tape. In this connection, when the other deck is in stop, the playback in the head direction displayed at present is entered.

ii)⊐: When the deck in play reaches the end of the reverse (rear) side of the tape, this deck stops. In this connection, when the other deck is in stop, the forward play (FWD PLAY) is entered.

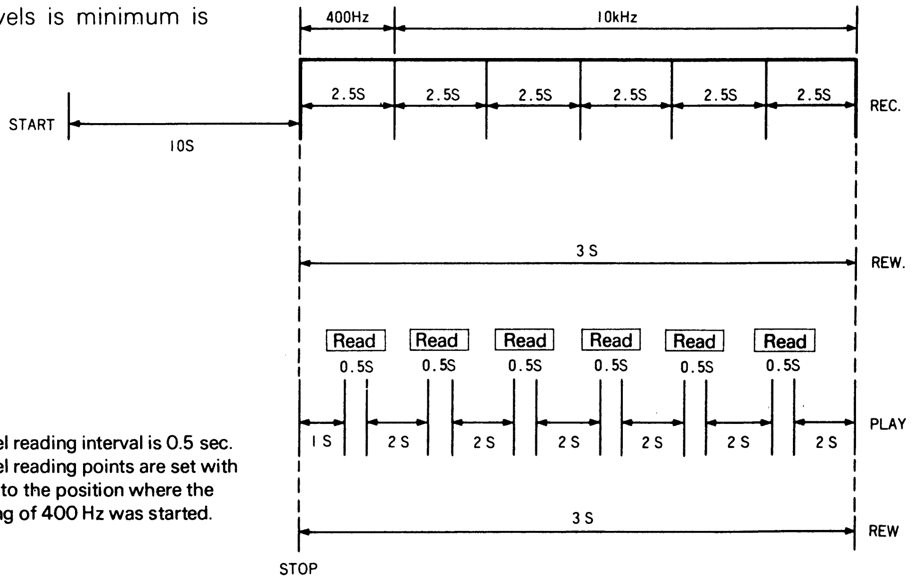
CIRCUIT DESCRIPTION

3-4 Auto-Bias Adjustment (Deck B only)

Signals of 400 Hz and 10 kHz are recorded while varying the bias in 5 steps, their playback levels are A/D converted and read, and the bias value that can minimize the level difference between 400 Hz and 10 kHz is set based on the data. This function is activated with any type of tape, but it is only with normal tapes that the bias is actually varied.

1) While REC MUTE is kept ON, signal is recorded with the standard bias for approx. 10 seconds (no-sound recording). The electronic volume is also set to $-\infty$ during this time (minimum position).
2) The 400 Hz signal is recorded with the standard bias for 2.5 seconds.
3) Then the 10 kHz signal is recorded, starting with the smallest bias and by deepening it every 2.5 seconds.
4) The tape is rewound to the position where the recording of the 400 Hz signal was started, and played back.
5) The level of 400 Hz signal and the levels of 10 kHz signal with different biases are read for 0.5 second each, and the bias value with which the difference between the 400 Hz and 10 kHz levels is minimum is selected.
6) The tape is rewound to the position where the recording of the 400 Hz signal was started, and it is stopped.

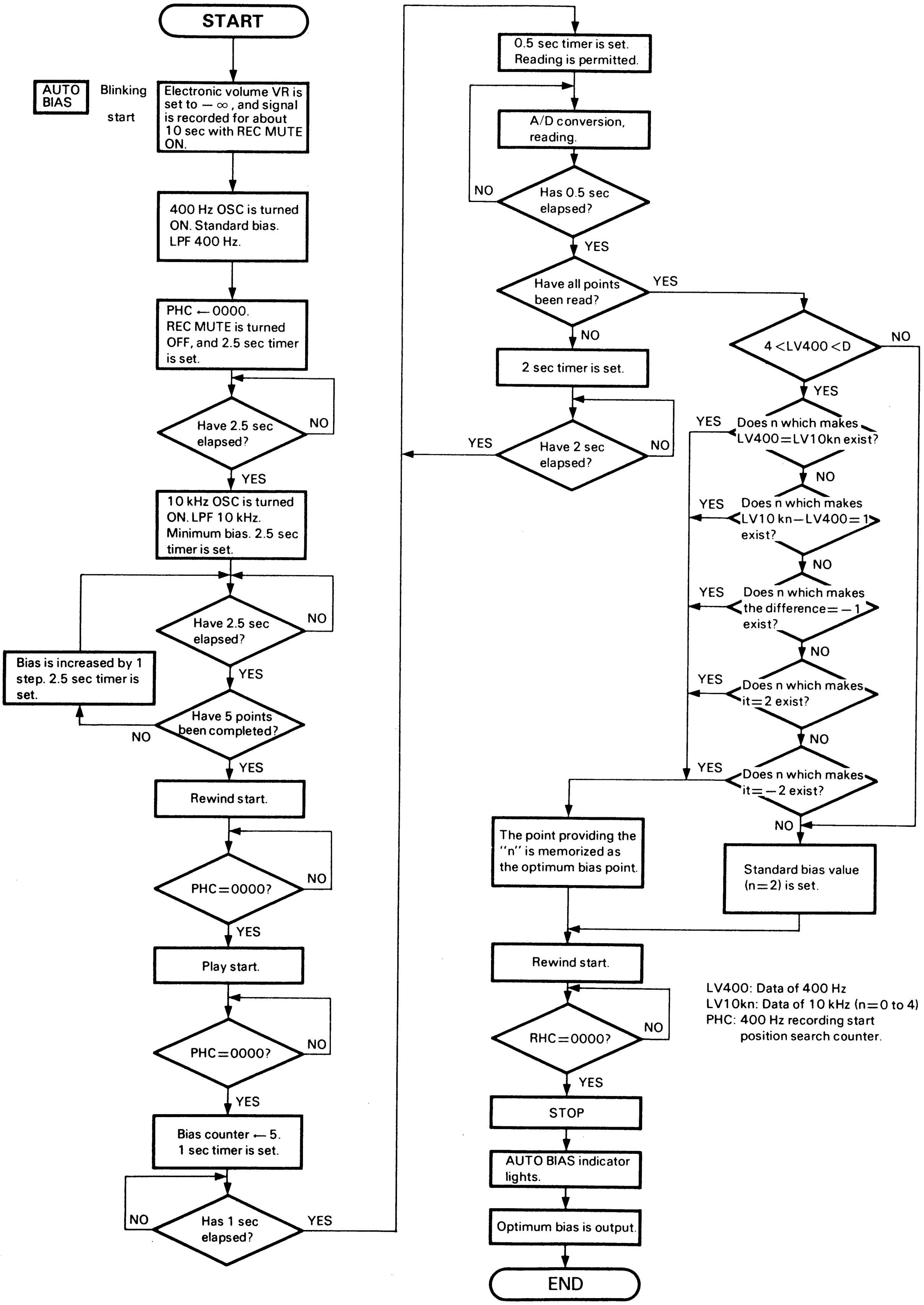
- The AUTO BIAS indicator blinks during operations from 1) to 6), and lights steadily when they have been completed. During 1) to 6), the key inputs are inhibited except for the STOP key of Deck B, Deck A, ▶▶, ◀◀ and ■ keys, DISPLAY key and RESET key.
- The AUTO BIAS key is accepted only when both of Decks A and B are in the Stop mode.
- The time required for the adjustment is about 25 seconds for recording, 16 seconds for playback, 3 seconds × 2 for rewindings, that is, about 47 seconds in total.



- The level reading interval is 0.5 sec.
- The level reading points are set with respect to the position where the recording of 400 Hz was started.

CIRCUIT DESCRIPTION

Auto-Bias Adjustment Operation Flowchart


START
AUTO BIAS
Blinking
start
Electronic volume VR is set to – ∞, and signal is recorded for about 10 sec with REC MUTE ON.
400 Hz OSC is turned ON. Standard bias. LPF 400 Hz.
PHC ← 0000. REC MUTE is turned OFF, and 2.5 sec timer is set.
Have 2.5 sec elapsed?
NO
YES
10 kHz OSC is turned ON. LPF 10 kHz. Minimum bias. 2.5 sec timer is set.
Have 2.5 sec elapsed?
NO
YES
Bias is increased by 1 step. 2.5 sec timer is set.
Have 5 points been completed?
NO
YES
Rewind start.
PHC=0000?
NO
YES
Play start.
PHC=0000?
NO
YES
Bias counter ← 5. 1 sec timer is set.
Has 1 sec elapsed?
NO
YES
0.5 sec timer is set. Reading is permitted.
A/D conversion, reading.
Has 0.5 sec elapsed?
NO
YES
Have all points been read?
YES
NO
2 sec timer is set.
Have 2 sec elapsed?
YES
NO
4 <LV400 <D
NO
YES
Does n which makes LV400=LV10kn exist?
YES
NO
Does n which makes LV10kn–LV400=1 exist?
YES
NO
Does n which makes the difference=–1 exist?
YES
NO
Does n which makes it=2 exist?
YES
NO
Does n which makes it=–2 exist?
YES
NO
The point providing the "n" is memorized as the optimum bias point.
Standard bias value (n=2) is set.
Rewind start.
RHC=0000?
NO
YES
STOP
AUTO BIAS indicator lights.
Optimum bias is output.
END

LV400: Data of 400 Hz
LV10kn: Data of 10 kHz (n=0 to 4)
PHC: 400 Hz recording start position search counter.

CIRCUIT DESCRIPTION

3. OTHER FUNCTIONS

3-1 Synchronous recording (CD player and cassette deck, or turntable and cassette deck)

The deck can know the current recording source by analyzing the selector code from the amplifier at any time. In addition, after the recording mode is entered, the recording source does not change because of the preceding item (2).

By virtue of these two principles, the deck can obtain synchronization by analyzing the code from the device from which recording is made at present.

(a) Synchronous operation between CD player and cassette deck

CD operation / Deck status	Stop→play	Pause→play	Play→pause	Play→stop	Pause→stop	Play→tray open	Pause→tray open
Recording (in tape run)	Non change	Non change	ARM is entered. 4 seconds later, the recording pause mode is entered.	ARM is entered. 4 seconds later the tape stops.	←	←	←
ARM (auto recording mute)	ARM is stopped, and recording is made.	←	After the termination of the current ARM time, the recording pause mode is entered.	After the termination of the current ARM time, the stop mode is entered.	←	←	←
Recording pause	The recording mode is entered.	←	Non change	The stop mode is entered.	←	←	←

(b) Synchronous operation between turntable and cassette deck

Deck status / Turntable operation	Arm up→down (mute ON→OFF)	Arm down→up (mute OFF→ON)	Arm return to rest
Recording (in tape run)	Non change	ARM is entered. After the termination of ARM time (4 seconds later), the recording pause mode is entered.	ARM is entered. After the termination of ARM time (4 seconds later), the stop mode is entered.
ARM (auto recording mute)	ARM is stopped. The recording mode is restored.	After the termination of the current ARM time, the recording pause mode is entered.	After the termination of the current ARM time, the stop mode is entered.
Recording pause	The recording mode is entered.	Non change	The stop mode is entered.

Note: In case of (a), the muting is canceled after the CD player plays or it delays 2.2 seconds after output of start code. The aiming is that even when the deck is in operation transit at start of the CD player, the head section of the recording is protected from being muted.

CIRCUIT DESCRIPTION

3-2 CCRS edit PRO (deck B exclusive feature)

Synchronous recording operations are performed by combined use of a CD player, an amplifier and the deck.

(1)Normal recording

The CD player is entered to the play mode and the deck, to the recording mode. Thus, the deck operates in synchronization with the operation of the CD player.

The following operation is also feasible due to the process prior to recording.

- When CCRS is already set (CCRS indicator in lighting)
  Of the deck, the recording level is set to the preset value, on which recording is then made. During recording, the recording level cannot be varied.

(2)CCRS edit PRO

A cross fade recording feature is added besides fade out, erase and edit features.

(A)Fade out mode

Setting: Set the CD player to the track mode, and press the CCRS key of the deck

Operation:
- The deck issues the CCRS start code.
- When the CD player receives the CCRS start code, the CD player issues the CD standby code and enters the sampling operation to set the recording level.

Level setting. CCRS indicator flickers at intervals of 0.25 second.

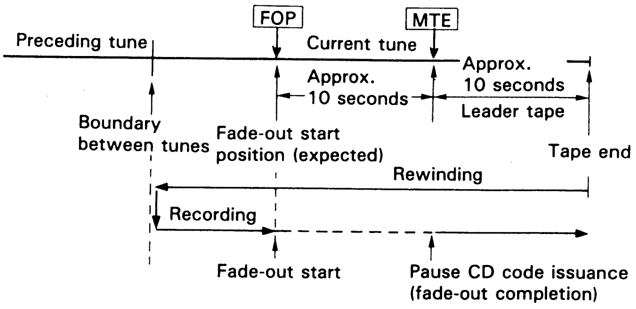
(a) Play is made for 15 seconds from the location of a length of 1 minutes prior to the end of tune Nos 1-3, or the end section of the final tune is played for 15 seconds.

- When the amplifier receives the CD standby code, its input selector is locked to the CD position to turn ON the $-\infty$ muting. When the deck receives the CD standby code, its electronic VR is set to "-6 dB" and at the same time the recording pause mode is entered to start the level detection.

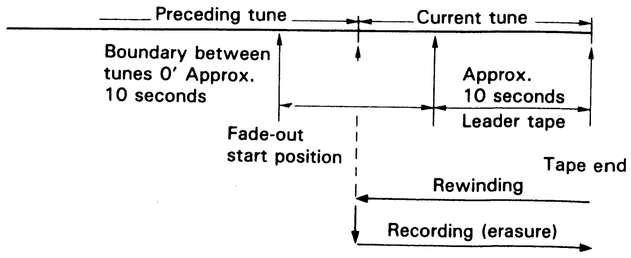
(b) A-D conversion is made. The data to attenuate by the amount by which the set value is exceeded is sent to the electronic VR. This process is repeatedly performed until the CD standby code is received again.

- The CD player, after the termination of 15-second playback of the final tune, issues the CD standby code again to enter the process of a.
- When the deck receives the CD standby code of the second time, it terminates the level setting to perform the auto bias setting. After the completion of the auto bias setting, the deck enters the recording pause mode and at the same time issues the deck standby code.
- When the amplifier receives the deck standby code, the muting is turned OFF.
  When the CD player receives the deck standby code, it stops sampling to issue the CD start code. After 2.2 seconds, the CD player starts to play the tune of the smallest tune number.
- When the deck receives the CD start code, it enters the recording mode.
- The CD player issues the CD start code each time the tune number changes.
- When the deck receives the CD start code, it memorizes the then count value.
- When the deck detects the tape end, it operates depending upon the location of the boundary between the current tune and the preceding tune as follows:

1) When the boundary is located more than 20 seconds prior to the tape end...
   The tape end code is issued and the tape is rewound to that location. Then, the recording mode is re-entered and the play CD code is issued.
   When the location prior 20 seconds to the tape end is arrived at, the fade-out operation is started. Thus, when the electronic VR setting goes to $-\infty$, the pause CD code is issued.


FOP
MTE
Preceding tune
Current tune
Approx. 10 seconds
Approx. 10 seconds
Leader tape
Boundary between tunes
Fade-out start position (expected)
Tape end
Rewinding
Recording
Fade-out start
Pause CD code issuance (fade-out completion)

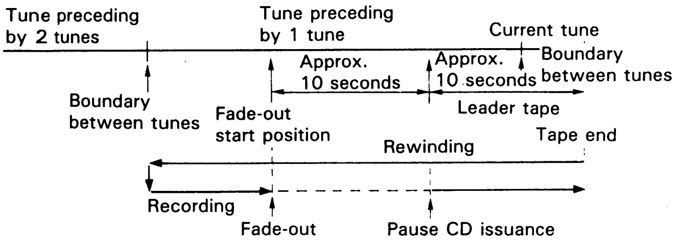
2) When the boundary between tunes is located between the fade-out start position and the leader tape...
   The tape end code is issued and the tape is rewound to that location. Then, the recording mode is entered, and erasure is made up to the tape end with recording mute ON.


Preceding tune
Current tune
Boundary between tunes 0' Approx. 10 seconds
Approx. 10 seconds
Leader tape
Fade-out start position
Tape end
Rewinding
Recording (erasure)

CIRCUIT DESCRIPTION

3) When the boundary between tunes is located in the leader tape section (except for the first tune)...

The tape end back code is issued, and the tape is rewound to the boundary between the tune preceding by two tunes and the tune just preceding by one tune. Then, the recording mode is entered, and the play CD code is issued. When the location prior 20 seconds to the tape end is arrived at, the fade-out operation starts. Thus, when the electronic VR setting goes to −∞, the pause CD code is issued.


Tune preceding by 2 tunes
Tune preceding by 1 tune
Current tune
Approx. 10 seconds
Approx. 10 seconds
Boundary between tunes
Boundary between tunes
Fade-out start position
Leader tape
Rewinding
Tape end
Recording
Fade-out
Pause CD issuance

4) When the start position of the first tune is located in the leader tape section...

The tape end code is issued, and the subsequent reverse operation is performed as it stands.

- When the tape end is reached again after erasure or fade-out operation at previous item 1), 2) or 3), or when previous step 4) is at work, a following operation is performed.

①When reverse recording or " ⇄ " mode is engaged, or when the reverse side of the tape is disabled from recording...

The stop mode is entered to issue the deck stop code. The CCRS mode is canceled.

②Other than above item 1)

The reverse recording mode is entered. After ARM is thus applied for 10 seconds, the play CD code is issued to start the fade-in operation from −∞.

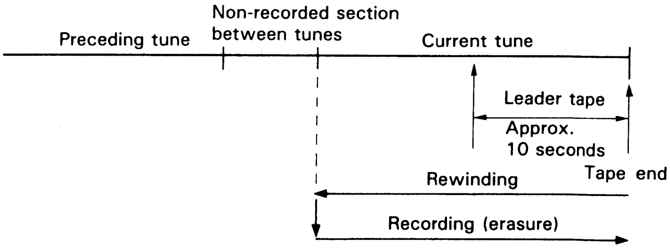
B) Erase mode

Setting: Set the CD player to the PGM mode, and after tune programming, press the CCRS key of the deck.

Operation:
- The level setting is the same as in "(a) Fade out mode".
- When the CD player receives the deck standby code, it searches for the first programmed tune to issue the CD start code. After 2.2 seconds, play of that tune is started.
- When the deck receives the CD start code, it enters the recording mode.
- When the tune ends, the CD player issues the CD end code, and when the next tune starts, the CD player issues the CD start code.
- When the deck receives the CD end code and start code, it memorizes the then count values.
- When the deck detects the tape end, it performs depending upon the location of the boundary between tunes as follows:

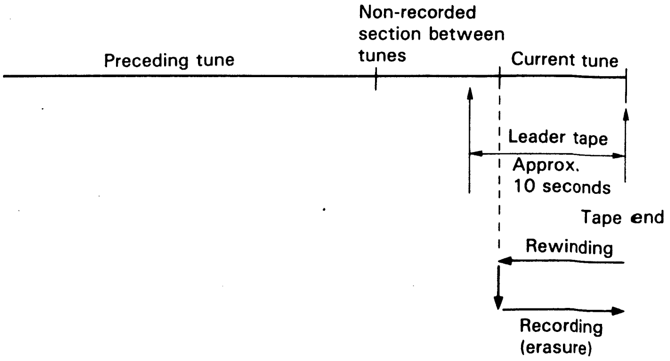
1) When play is made at present and the start position of that tune is prior to the leader tape section...

The tape end code is issued, and the tape is rewound to the start position of that tune. Then, the recording mode is entered with recording mute kept ON (in which erasure is made).


Preceding tune
Non-recorded section between tunes
Current tune
Leader tape
Approx. 10 seconds
Rewinding
Tape end
Recording (erasure)

2) When play is made at present, the start position of that tune is located in the leader tape section and the end position of the preceding tune is prior to the leader tape section...

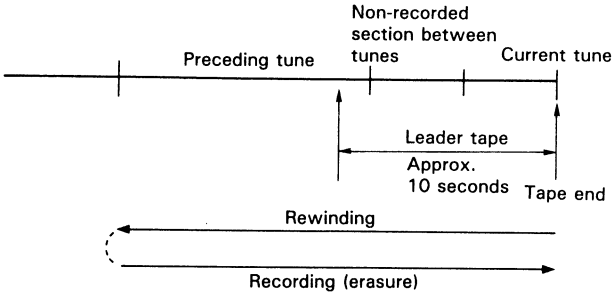
The operation is the same as above 1).


Preceding tune
Non-recorded section between tunes
Current tune
Leader tape
Approx. 10 seconds
Tape end
Rewinding
Recording (erasure)

CIRCUIT DESCRIPTION

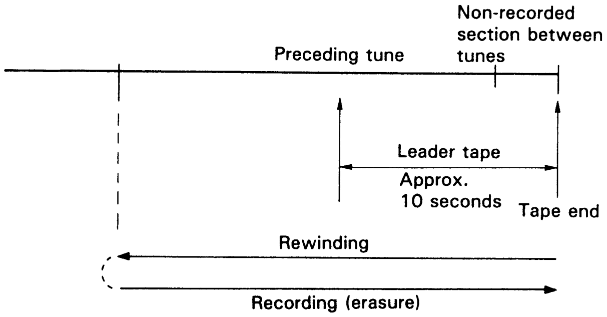
3) When play is made at present, the start position of that tune is located in the leader tape section and the end position of the preceding tune is also located in the leader tape section...

The tape end back code is issued, and the tape is rewound to the start position of the preceding tune. Then, the recording mode is entered with recording mute kept ON (in which erasure is made).


Non-recorded section between tunes
Preceding tune
Current tune
Leader tape
Approx. 10 seconds
Tape end
Rewinding
Recording (erasure)

4) When a non-recorded section between tunes is engaged at present and the end position of the preceding tune is in the leader tape section...

The tape end code is issued, and the tape is rewound to the start position of the preceding tune. The recording mode is entered with recording mute kept ON (in which erasure is made).


Non-recorded section between tunes
Preceding tune
Leader tape
Approx. 10 seconds
Tape end
Rewinding
Recording (erasure)

5) When a non-recorded section between tunes is engaged at present and the end position of the preceding tune is prior to the leader tape section...

The pause CD code is issued, and the subsequent reverse operation is performed.

- When the tape end is reached again after erasure at previous item 1), 2), 3) or 4), or when previous step 5) is at work, a following operation is performed.

1) When reverse recording or " ⇄ " mode is engaged, or when the reverse side of tape is disabled from recording...

The stop mode is entered to issue the deck stop code. The CCRS mode is canceled.

2) Other than above 1)

The reverse recording move is entered. After ARM is thus applied for 10 seconds, the play CD code is issued.

(C) Edit mode

Setting: Press the EDIT key of the CD player, enter the tape length, then make edition, after which press the CCRS key of the deck.

Operation:
- The level setting is the same as in "(A) Fade out mode".
- The operation during play is the same as in "(B) Erase mode". However, the CD player, upon the termination of all tunes on the A side, issues the A side end code, and enters the pause mode at the head tune on the B side.
- The operation at the tape end of the deck is the same as in "(B) Erase mode". However, when the tape length is suited, item 5) of "(B) Erase mode" is engaged.

  When the status other than at the same item 5) is entered due to faulty input, etc., that is when the tape end or tape end back code is received, the CD player cancels the edit mode, after which it performs the operation occurring at "(B) Erase mode".

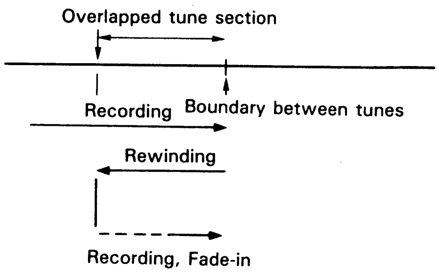
(D) Cross fade mode

Setting: The setting of the CD player is the same as in previous article (A)-(C). Then, press the CROSS FADE key of the deck.

Operation:
- The level setting is the same as in previous article (A)-(C).
- Operation during recording:

1) When the CD player is in the track mode...

When the deck receives the CD start code, it issues the tape end code to rewind the tape to the location prior 10 seconds. Then, the play CD code is issued, and the recording pause mode is entered at electronic VR setting of $-\infty$. Upon reception of the CD start code, the recording mode is entered at a low bias.


Overlapped tune section
Recording
Boundary between tunes
Rewinding
Recording, Fade-in

CIRCUIT DESCRIPTION

2) When the CD player is in the PGM mode...

   When the deck receives the CD end code, it issues the pause CD code to rewind the tape to the location prior 10 seconds.

   The rest operation is the same as in previous item 1).

   When it receives the A side end code, it clears the in-tune flag, memorizes the counter value and continues the recording as it is.

- Operation when tape end is detected:

1) When reverse recording or '' ⇌ '' mode is engaged, or when the reverse side of the tape is disabled from recording during the forward recording mode...

   The stop mode is entered to issue the deck stop code. The CCRS mode is canceled.

2) Other than above item 1)

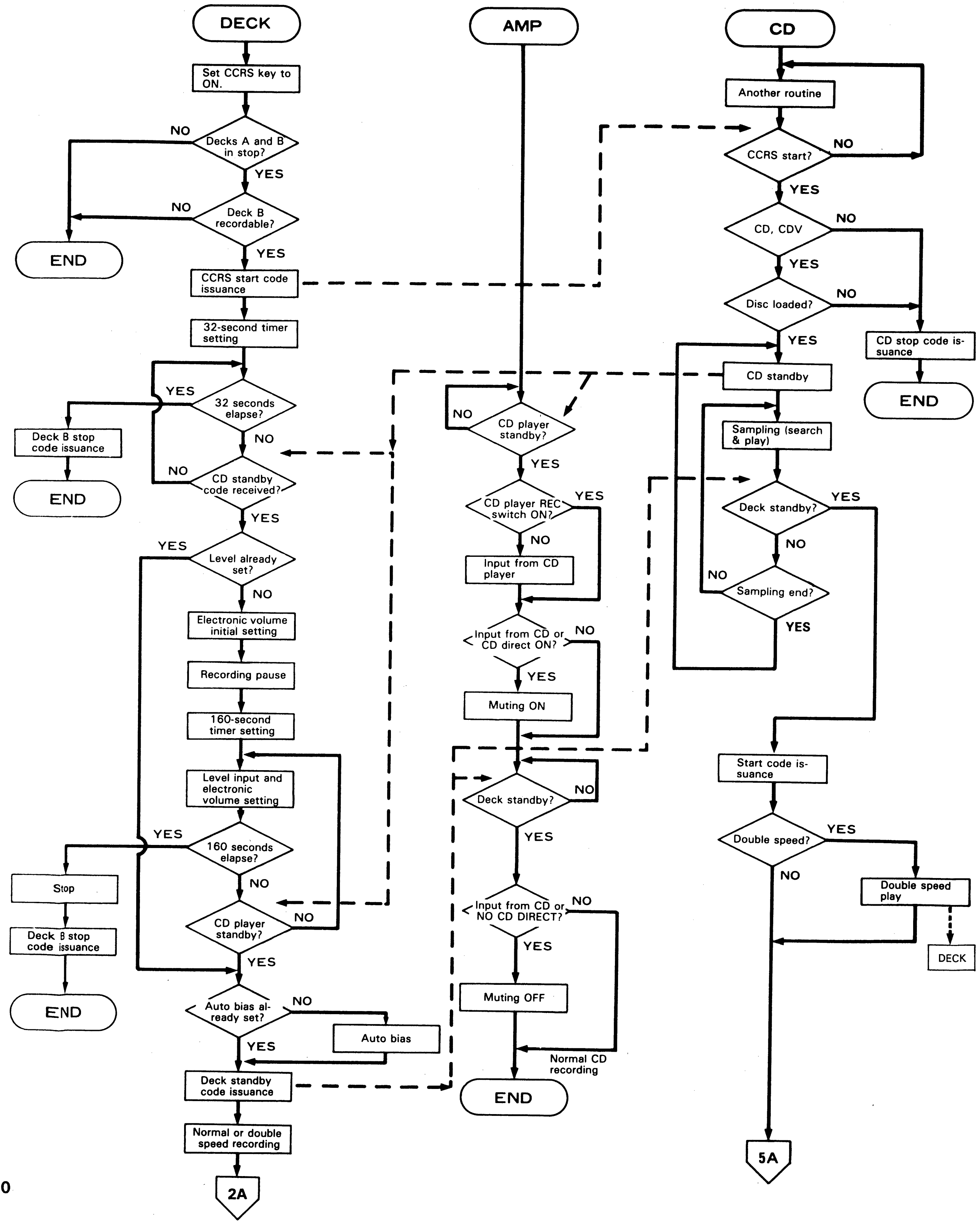
   a) Even in a tune or without tune, when the tune end reaches the leader tape section...
   the deck end code is issued.

   b) Without tune, when the tune end does not reach the leader tape section...
   the pause CD code is issued.
   The reverse recording mode is entered. After ARM is thus applied for 10 seconds, the play CD code is issued. The, the recording mute is OFF.

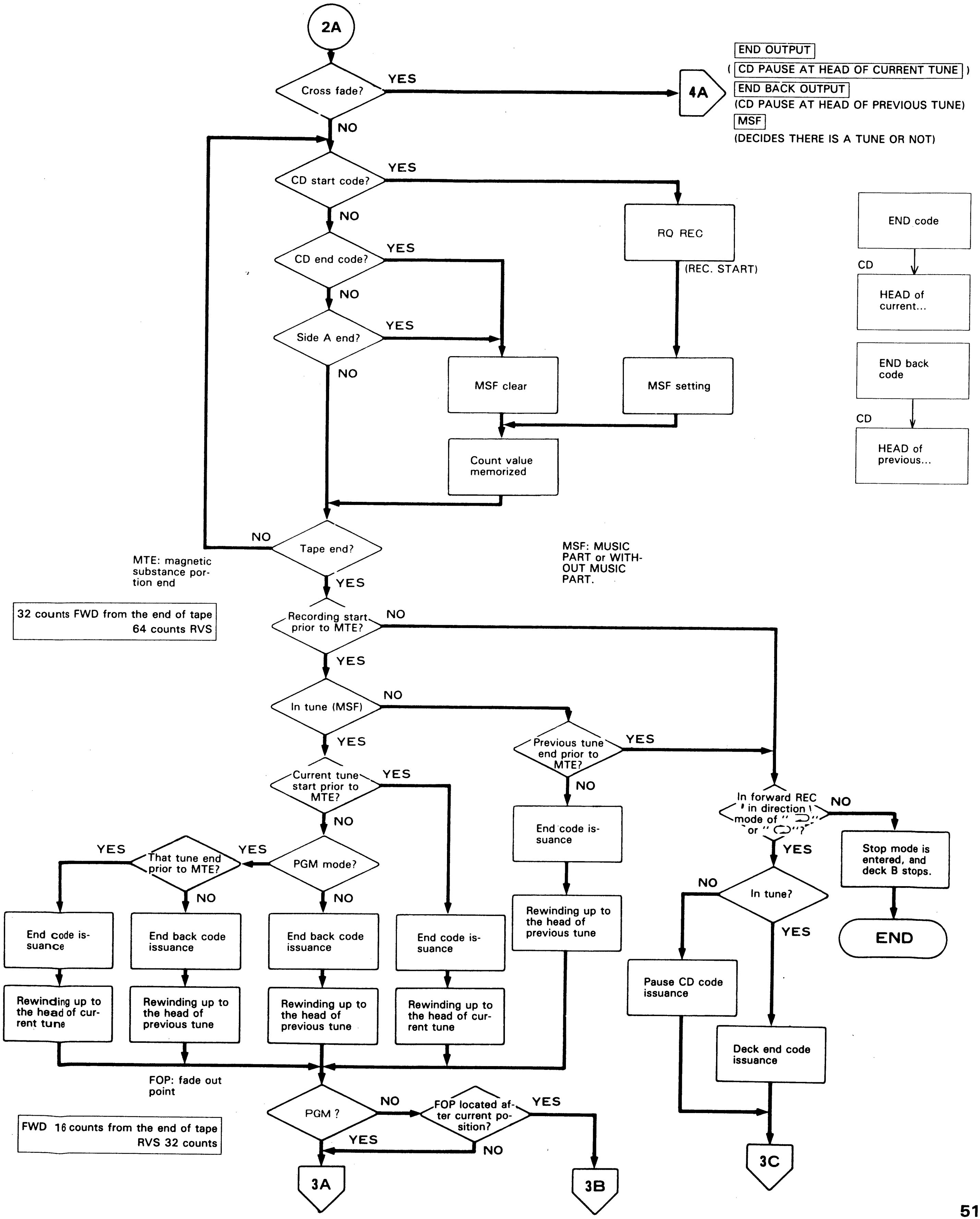
CIRCUIT DESCRIPTION

4. CCRS EDIT PRO OPERATION FLOWCHART

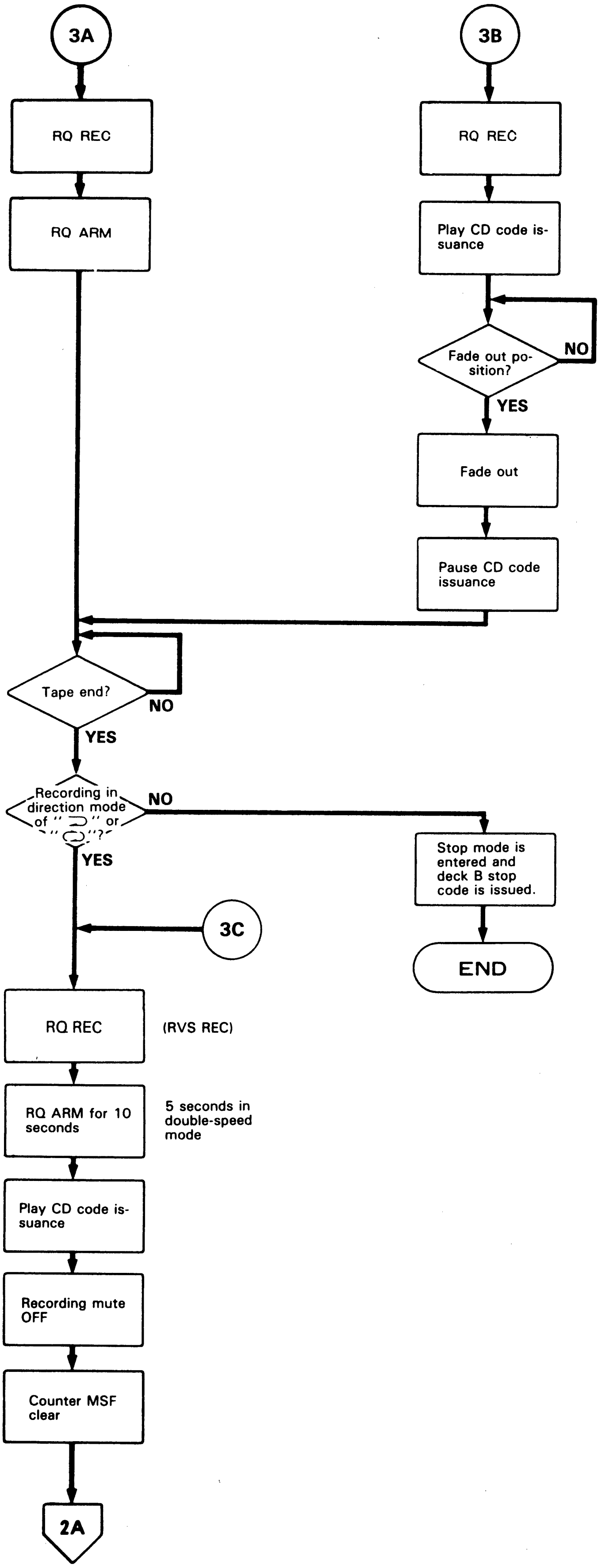
(1) Recording level setting


DECK
Set CCRS key to ON.
Decks A and B in stop?
NO
YES
Deck B recordable?
NO
YES
END
CCRS start code issuance
32-second timer setting
32 seconds elapse?
YES
NO
Deck B stop code issuance
END
CD standby code received?
NO
YES
Level already set?
YES
NO
Electronic volume initial setting
Recording pause
160-second timer setting
Level input and electronic volume setting
160 seconds elapse?
YES
NO
Stop
Deck B stop code issuance
END
CD player standby?
NO
YES
Auto bias already set?
NO
Auto bias
YES
Deck standby code issuance
Normal or double speed recording
2A
AMP
CD player standby?
NO
YES
CD player REC switch ON?
YES
NO
Input from CD player
Input from CD or CD direct ON?
NO
YES
Muting ON
Deck standby?
NO
YES
Input from CD or NO CD DIRECT?
NO
YES
Muting OFF
Normal CD recording
END
CD
Another routine
CCRS start?
NO
YES
CD, CDV
NO
YES
Disc loaded?
NO
YES
CD stop code issuance
END
CD standby
Sampling (search & play)
Deck standby?
YES
NO
Sampling end?
NO
YES
Start code issuance
Double speed?
YES
NO
Double speed play
DECK
5A

CIRCUIT DESCRIPTION

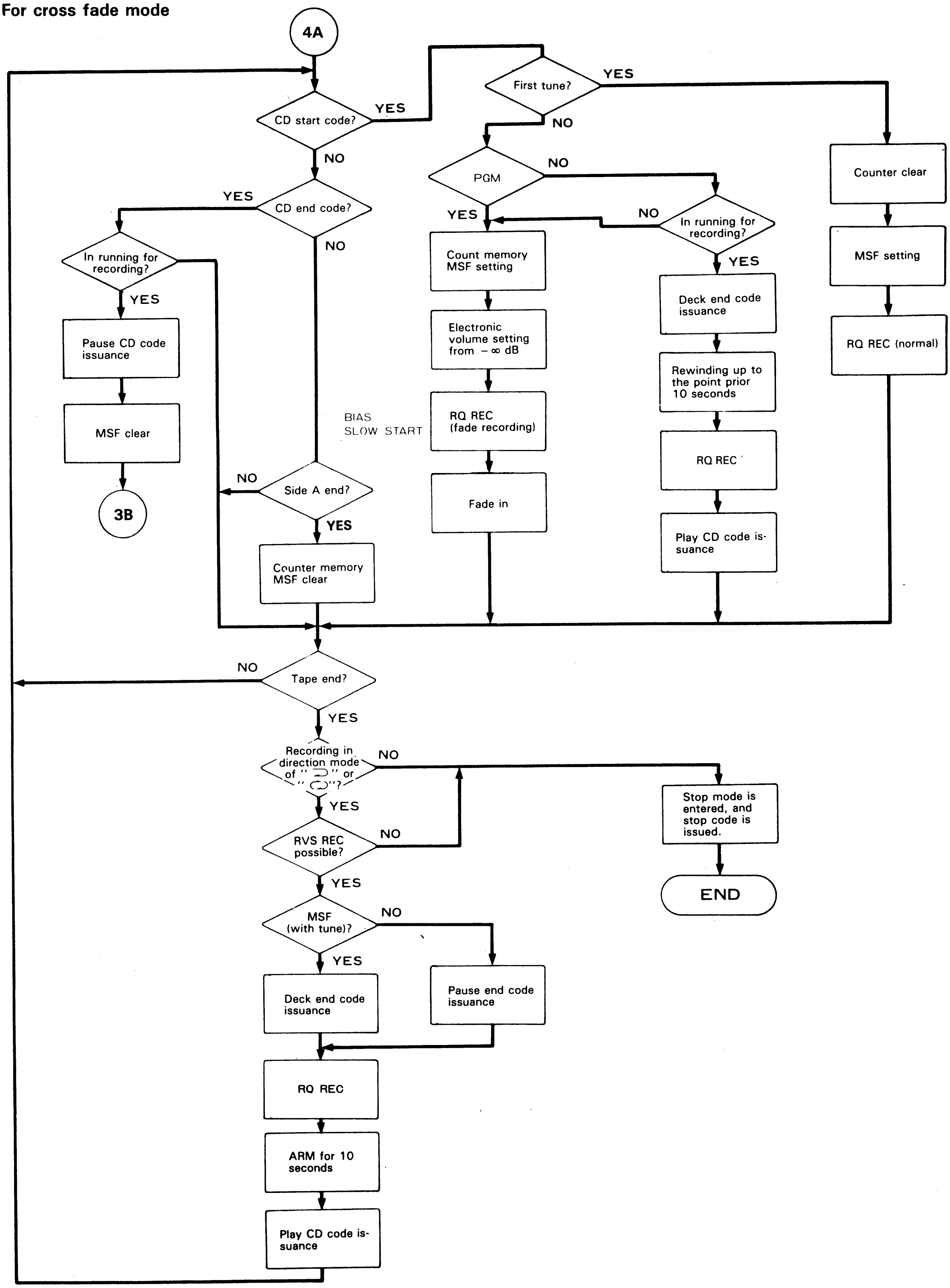

2A
Cross fade?
YES
4A
END OUTPUT
(CD PAUSE AT HEAD OF CURRENT TUNE)
END BACK OUTPUT
(CD PAUSE AT HEAD OF PREVIOUS TUNE)
MSF
(DECIDES THERE IS A TUNE OR NOT)
NO
CD start code?
YES
RQ REC
(REC. START)
MSF setting
NO
CD end code?
YES
NO
Side A end?
YES
NO
MSF clear
Count value memorized
END code
CD
HEAD of current...
END back code
CD
HEAD of previous...
NO
Tape end?
YES
MTE: magnetic substance portion end
MSF: MUSIC PART or WITHOUT MUSIC PART.
32 counts FWD from the end of tape
64 counts RVS
Recording start prior to MTE?
NO
YES
In tune (MSF)
NO
YES
Previous tune end prior to MTE?
YES
NO
End code issuance
Rewinding up to the head of previous tune
Current tune start prior to MTE?
YES
NO
PGM mode?
YES
NO
That tune end prior to MTE?
YES
NO
End code issuance
Rewinding up to the head of current tune
End back code issuance
Rewinding up to the head of previous tune
End back code issuance
Rewinding up to the head of previous tune
End code issuance
Rewinding up to the head of current tune
In forward REC in direction mode of " ⊃ " or " ⊂ "?
NO
Stop mode is entered, and deck B stops.
END
YES
In tune?
NO
YES
Pause CD code issuance
Deck end code issuance
3C
FOP: fade out point
FWD 16 counts from the end of tape
RVS 32 counts
PGM ?
NO
FOP located after current position?
YES
YES
NO
3A
3B

CIRCUIT DESCRIPTION


3A
3B
RQ REC
RQ REC
RQ ARM
Play CD code issuance
Fade out position?
NO
YES
Fade out
Pause CD code issuance
Tape end?
NO
YES
Recording in direction mode of " ⊐ " or " ⊂⊃ "?
NO
YES
Stop mode is entered and deck B stop code is issued.
END
3C
RQ REC
(RVS REC)
RQ ARM for 10 seconds
5 seconds in double-speed mode
Play CD code issuance
Recording mute OFF
Counter MSF clear
2A

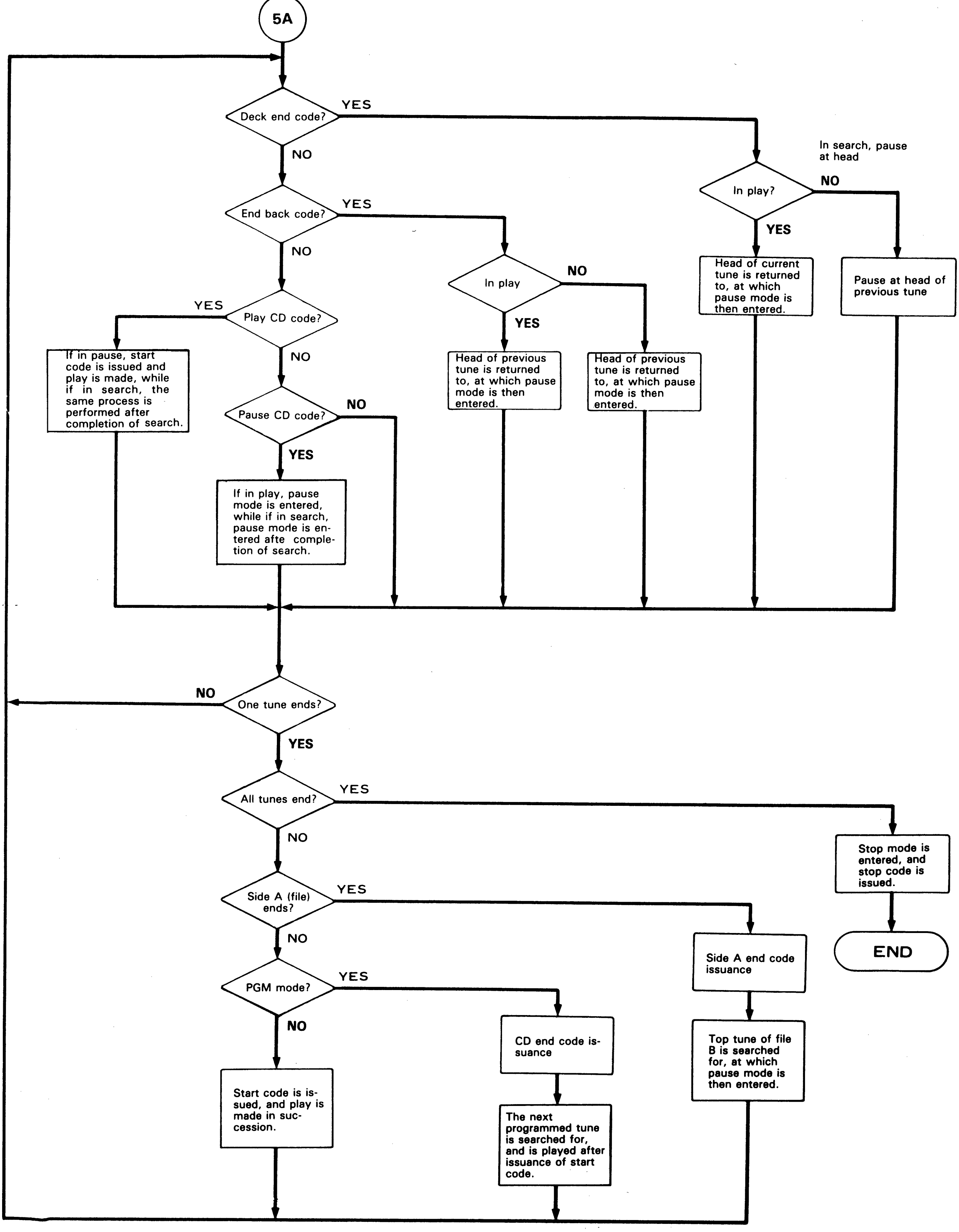
CIRCUIT DESCRIPTION

For cross fade mode


4A
CD start code?
YES
NO
First tune?
YES
NO
Counter clear
MSF setting
RQ REC (normal)
PGM
NO
YES
In running for recording?
NO
YES
Count memory MSF setting
Electronic volume setting from –∞ dB
BIAS SLOW START
RQ REC (fade recording)
Fade in
Deck end code issuance
Rewinding up to the point prior 10 seconds
RQ REC
Play CD code issuance
CD end code?
YES
NO
In running for recording?
YES
Pause CD code issuance
MSF clear
3B
Side A end?
NO
YES
Counter memory MSF clear
Tape end?
NO
YES
Recording in direction mode of " ⊐ " or " ⊂⊃ "?
NO
YES
Stop mode is entered, and stop code is issued.
END
RVS REC possible?
NO
YES
MSF (with tune)?
NO
YES
Deck end code issuance
Pause end code issuance
RQ REC
ARM for 10 seconds
Play CD code issuance

CIRCUIT DESCRIPTION

LD Player:


5A
Deck end code?
YES
NO
In search, pause at head
In play?
NO
YES
Head of current tune is returned to, at which pause mode is then entered.
Pause at head of previous tune
End back code?
YES
NO
In play
NO
YES
Head of previous tune is returned to, at which pause mode is then entered.
Head of previous tune is returned to, at which pause mode is then entered.
Play CD code?
YES
NO
If in pause, start code is issued and play is made, while if in search, the same process is performed after completion of search.
Pause CD code?
NO
YES
If in play, pause mode is entered, while if in search, pause mode is entered afte completion of search.
One tune ends?
NO
YES
All tunes end?
YES
NO
Stop mode is entered, and stop code is issued.
END
Side A (file) ends?
YES
NO
Side A end code issuance
Top tune of file B is searched for, at which pause mode is then entered.
PGM mode?
YES
NO
CD end code issuance
The next programmed tune is searched for, and is played after issuance of start code.
Start code is issued, and play is made in succession.

CIRCUIT DESCRIPTION

5. TEST MODE

5-1 TEST1

(1) Setting method

Short KS3 (pin 20) and KR1 (pin 1) by a diode and set the timer switch. After that, when the power is turned ON. the TEST1 mode is entered. Once the TEST1 mode is entered, even when the diode is disconnected off, the TEST1 mode is not canceled.

The auto bias test is feasible as long as they are shorted by the diode. However, otherwise, for each other test, the power must be turned ON with them shorted by the diode prior to power ON.

(2) Canceling method

Press the pause key of deck A or deck B.

(3) Operation specification

a) Display all lit

At power ON, the display is all lit for about 1.5 seconds.

b) Play operation test (timer switch play)

Set the timer switch to the play mode, and turn the power ON, and about 4 seconds later deck A will start forward play at a normal speed, in which in turns it performs forward play at a normal speed for 5 seconds, at a high speed for 1.5 seconds, then reverse play at a normal speed for 2 seconds, and stops. Successively, deck B comes across the same process.

c) Recording operation test (timer switch recording)

Set the timer switch to the recording mode and turn the power ON, and about 4 seconds later deck B starts recording, in which in turns it performs recording at a recording level of −22 dB for 3 seconds, recording at a recording level of −∞ dB for 5 seconds, and rewinds the tape up to the recording start position, then performs play for 8 seconds, and stops.

During the time of period from recording start until stop, the display is made indicating the recording operation test.

Segments h-p of grid 2 light one after one in sequence, while the rest a-g are off.

h → i → j → k → l → m → n → o → p → h →···→

(The nine segments constituting the second-order digit of the counter and a colon are lighting one after one, and the rest seven segments constituting the third-order digit are off.)

d) Deck A cassette half ignorance and forward play

When the RVS PLAY key of deck A is pressed irrespective of the time switch position, the deck performs forward play with or without a cassette tape.

e) 3-second recording and play

When the REC key is pressed, after recording is made for 3 seconds, the tape is rewound up to the recording start position and is played.

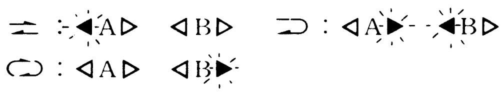
f) Recording VR level

The recording VR level at power ON is set at −22 dB for the test mode (−15 dB for normal operation modes). The recording VR level during the test mode is of 3 states: −∞ dB, −22 dB and 0 dB.

When UP key is pressed: −∞ dB→ −22 dB,
−22 dB→0 dB

When DOWN key is pressed: 0 dB→ −22 dB,
−22 dB→ −∞ dB

The level setting is made as above.



g) Reverse mode switch check

Depending upon the reveres mode switch position, the direction indication of decks A and B differs.

h) Auto bias

When decks A and B are both in stop, when the AUTO BIAS key is pressed, the auto bias operation is started. At this time, the auto bias setting takes 23 seconds, approximately half in a normal operation mode. (No operation is made unless TEST pin is shorted by a diode.)

i) CCRS

When the CCRS key is pressed with the CCRS indicator off, the recording VR level is set to 0 dB, then the CCRS indicator flickers, and the recording pause mode is entered. At this time, any other key than the STOP key of deck B is not accepted. When the STOP key is pressed, the CCRS indicator lights to indicate that CCRS is already set.

When the CCRS key is pressed with the CCRS indicator lighting, the CCRS indicator goes out to indicate that CCRS is canceled from setting.

j) X. FADE

When the X. FADE key is pressed during the recording operation of deck B, "FADE" appears on the counter display portion. Each time the key is pressed, the "FADE" display is turned on/off.

CIRCUIT DESCRIPTION

k) Line mute OFF at CCRS/auto bias
During the test mode, the line mute is always OFF during the CCRS/auto bias setting as well.

l) 1.5-second key acceptance inhibit and mute ON at power ON
At power ON, any key acceptance is inhibited with the line mute ON for about 1.5 seconds. (For a normal operation mode, at power ON, any key acceptance is inhibited with the line mute ON for about 4 seconds.)

m) MPX ON/OFF pin test
Since the selector memory of the microprocessor is subject to initial setting to ''tuner'' at initial power ON, the MPX ON/OFF pin becomes ''H'' for recording or recording pause.
When the CCRS key is pressed, the selector memory is set to ''CD'', then the recording pause mode is engaged, and the MPX ON/OFF pin becomes ''L''. After that, until the STOP key of deck B is pressed and the CCRS key is re-pressed to cancel CCRS, the selector memory remains set to ''CD'', and this memory thus returns to ''tuner'' concurrently with the cancellation of CCRS.

5-2 TEST2

(1)Setting method

Short KS3 (pin 20) and KR2 (pin 20) by a diode. Only for display all lighting test, turn the power ON with them shorted by a diode. Otherwise, for each test item of TEST2 can be performed if the test point is shorted by a diode.

(2)Canceling method

Press the PAUSE key of deck A or B and disconnect away the diode.

(3)Operation specification

a) Directly selectable between play and recording modes
When the REC key is pressed during play, the recording operation is entered.

b) FADER (pin 27) ON/OFF
When the X. FADE key is pressed with deck B in recording mode, the FADER pin turns ON/OFF cyclically.

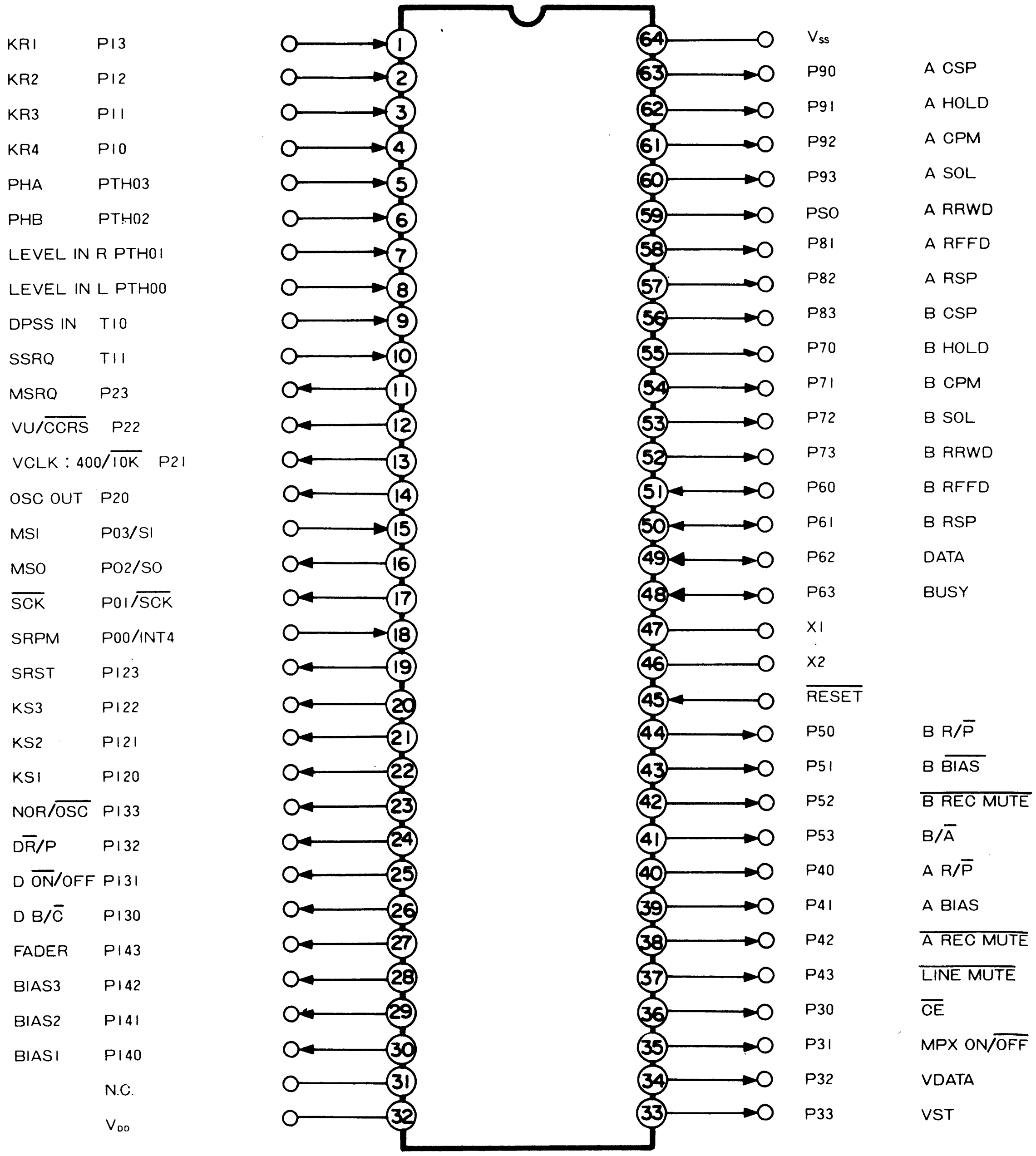
c) Auto bias
When the AUTO BIAS key is pressed with deck B in stop mode, the auto bias operation is entered immediately and deck A stops. At this time, the auto bias setting takes the same time (about 46 seconds) as in a normal operation mode.

* For TEST1 and TEST2, no automatic selection between counters A and B is made in some operations.

CIRCUIT DESCRIPTION

IC1: µPD75112CW-031 (X28-2080-21)
Microprocessor (Master)

Pin connection


KR1 P13 1
KR2 P12 2
KR3 P11 3
KR4 P10 4
PHA PTH03 5
PHB PTH02 6
LEVEL IN R PTH01 7
LEVEL IN L PTH00 8
DPSS IN T10 9
SSRQ T11 10
MSRQ P23 11
VU/$\overline{\text{CCRS}}$ P22 12
VCLK : 400/$\overline{\text{10K}}$ P21 13
OSC OUT P20 14
MSI P03/SI 15
MSO P02/SO 16
$\overline{\text{SCK}}$ P01/$\overline{\text{SCK}}$ 17
SRPM P00/INT4 18
SRST P123 19
KS3 P122 20
KS2 P121 21
KS1 P120 22
NOR/$\overline{\text{OSC}}$ P133 23
D$\overline{\text{R}}$/P P132 24
D $\overline{\text{ON}}$/OFF P131 25
D B/$\overline{\text{C}}$ P130 26
FADER P143 27
BIAS3 P142 28
BIAS2 P141 29
BIAS1 P140 30
N.C. 31
V_{DD} 32
64 V_{SS}
63 P90 A CSP
62 P91 A HOLD
61 P92 A CPM
60 P93 A SOL
59 PS0 A RRWD
58 P81 A RFFD
57 P82 A RSP
56 P83 B CSP
55 P70 B HOLD
54 P71 B CPM
53 P72 B SOL
52 P73 B RRWD
51 P60 B RFFD
50 P61 B RSP
49 P62 DATA
48 P63 BUSY
47 X1
46 X2
45 $\overline{\text{RESET}}$
44 P50 B R/$\overline{\text{P}}$
43 P51 B $\overline{\text{BIAS}}$
42 P52 $\overline{\text{B REC MUTE}}$
41 P53 B/$\overline{\text{A}}$
40 P40 A R/$\overline{\text{P}}$
39 P41 A BIAS
38 P42 $\overline{\text{A REC MUTE}}$
37 P43 $\overline{\text{LINE MUTE}}$
36 P30 $\overline{\text{CE}}$
35 P31 MPX ON/$\overline{\text{OFF}}$
34 P32 VDATA
33 P33 VST

CIRCUIT DESCRIPTION

Pin Functions:

Pin No.	Pin name	I/O	Symbol	Function	
1	P13	I	KR1	Mechanism switch input (HALF)	H : SW OFF L : SW ON
2	P12	I	KR2	Mechanism switch input (INHF)	H : SW OFF L : SW ON
3	P11	I	KR3	Mechanism switch input (INHR)	H : SW OFF L : SW ON
4	P10	I	KR4	Mechanism switch input (DIR)	H : SW OFF L : SW ON
5	PTH03	I	PHA	Mechanism A rotation detection sensor input	
6	PTH02	I	PHB	Mechanism B rotation detection sensor input	
7	PTH01	I	LEVEL R	CCRS, auto bias and meter signal input	
8	PTH00	I	LEVEL L	CCRS, auto bias and meter signal input	
9	TI0	I	DPSS IN	Section-between-tunes signal input	H : With tune L : Without tune
10	TI1	I	SSRQ	Slave microprocessor send request signal	H : With send request L : Without send request
11	P23	O	MSRQ	Master microprocessor send request signal	H : With send request L : Without send request
12	P22	O	VU/$\overline{\text{CCRS}}$	Level detection amplifier sensitivity output	H : Normally L : CCRS, auto bias
13	P21	O	VCLK: 400/$\overline{\text{10K}}$	Electronic VR serial data clock Filter selection for auto bias	H : 400 Hz L : 10 kHz
14	P20	O	OSC	400 Hz/10 kHz square wave output	
15	P03/SI	I	MSI	Master-slave communication serial data input	
16	P02/SO	O	MSO	Master-slave communication serial data output	
17	P01/$\overline{\text{SCK}}$	O	SCK	Master-slave communication serial data shift clock output	
18	P00/INT4	I	SRRM	Slave microprocessor reception acknowledge signal input	H : Reception OK L : Reception NG
19	P123	O	SRST	Slave microprocessor reset output	H : Reset L : Normal
20	P122	O	KS3	Mechanism switch scan output (TEST 1, 2/WS REC)	H : OFF L : Scan
21	P121	O	KS2	Mechanism switch scan output (B MECHA)	H : OFF L : Scan
22	P120	O	KS1	Mechanism switch scan output (A MECHA)	H : OFF L : Scan
23	P133	O	NOR/$\overline{\text{OSC}}$	Auto bias input selection, level detection sensitivity selection	H : NOR, CCRS L : A, BIAS
24	P132	O	D $\overline{\text{R}}$/P	Dolby REC/play selection.	H : Play L : REC
25	P131	O	D $\overline{\text{ON}}$/OFF	Dolby ON/OFF selection	H : OFF L : ON
26	P130	O	D B/$\overline{\text{C}}$	Dolby B/C selection.	H : B type L : C type

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Function	
27	P143	O	FADER	Bias fade-in control output	H : ON L : OFF
28	P142	O	BIAS #3	Bias selection output	H : ON L : OFF
29	P141	O	BIAS #2	Bias selection output. Center bias with this pin ON	H : ON L : OFF
30	P140	O	BIAS #1	Bias selection output	H : ON L : OFF
31	N.C.	—	—	Open	
32	V_{DD}	—	—	Connected to +5 V.	
33	P33	O	VOL. STRB	Electronic volume unit strobe signal output	
34	P32	O	VOL. DATA	Electronic volume unit serial data output	
35	P31	O	MPX ON/$\overline{\mathrm{OFF}}$	MPX control output	H : ON L : OFF
36	P30	O	$\overline{\mathrm{CE}}$	Backup detection output	H : Power ON L : Power OFF
37	P43	O	$\overline{\mathrm{LINE\ MUTE}}$	Line mute control output	H : Mute OFF L : Mute ON
38	P42	O	$\overline{\mathrm{A\ REC\ MUTE}}$	Deck A recording mute	H : Mute OFF L : Mute ON
39	P41	O	A BIAS	Deck A bias ON/OFF	H : Bias ON L : Bias OFF
40	P40	O	A R/$\overline{\mathrm{P}}$	Deck A recording/$\overline{\mathrm{play}}$ selection	H : Recording L : Play
41	P53	O	B/$\overline{\mathrm{A}}$	Play EQ E/A selection	H : B L : A
42	P52	O	$\overline{\mathrm{B\ REC\ MUTE}}$	Deck B recording mute	H : Mute OFF L : Mute ON
43	P51	O	$\overline{\mathrm{B\ BIAS}}$	Deck B bias ON/$\overline{\mathrm{OFF}}$	H : Bias ON L : Bias OFF
44	P50	O	B R/$\overline{\mathrm{P}}$	Deck B recording/$\overline{\mathrm{play}}$ selection	H : Recording L : Play
45	$\overline{\mathrm{RESET}}$	I	$\overline{\mathrm{RESET}}$	Reset input	H : Normal L : Reset
46	X2	O	—	Ceramic OSC connection pin	f=4.19 MHz
47	X1	I	—	Ceramic OSC connection pin	f=4.19 MHz
48	P63	I/O	BUSY	System control serial data I/O	
49	P62	I/O	DATA	System control serial data I/O	
50	P61	I/O	B RSP	Deck B reel motor speed selection	H : Play or recording L : Others
51	P60	O	B RFFD	Deck B reel motor control	B RFFD H L B RRWD L H FF RWD
52	P73	O	B RRWD	Deck B reel motor control	
53	P72	O	B SOL	Deck B solenoid control	H : ON L : OFF

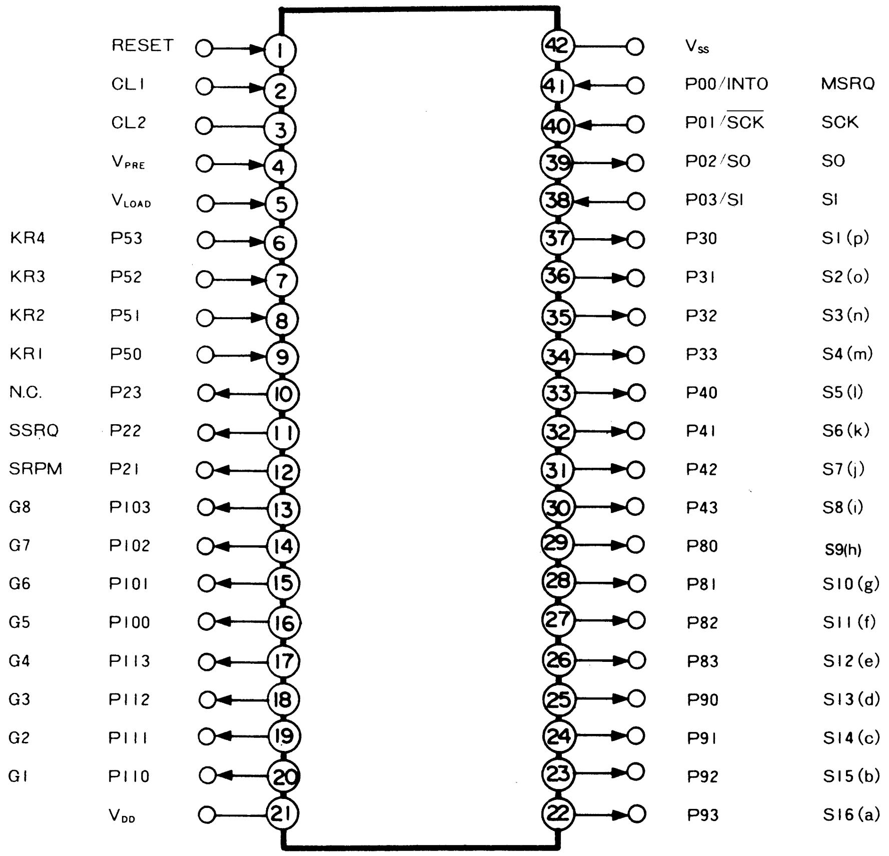
CIRCUIT DESCRIPTION

<table>
<tr><th>Pin No.</th><th>Pin name</th><th>I/O</th><th>Symbol</th><th colspan="2">Function</th></tr>
<tr><td>54</td><td>P71</td><td>O</td><td>B CPM</td><td>Deck B capstan motor control</td><td>H : ON
L : OFF</td></tr>
<tr><td>55</td><td>P70</td><td>O</td><td>B HOLD</td><td>Deck B solenoid control</td><td></td></tr>
<tr><td>56</td><td>P83</td><td>O</td><td>B CSP</td><td>Deck B capstan motor speed selection</td><td>H : Normal speed
L : High speed</td></tr>
<tr><td>57</td><td>P82</td><td>O</td><td>A RSP</td><td>Deck A reel motor speed selection</td><td>H : Play or recording
L : Others</td></tr>
<tr><td>58</td><td>P81</td><td>O</td><td>A RFFD</td><td>Deck A reel motor control</td><td rowspan="2"><table><tr><td>B RFFD</td><td>H</td><td>L</td></tr><tr><td>B RRWD</td><td>L</td><td>H</td></tr><tr><td></td><td>FF</td><td>RWD</td></tr></table></td></tr>
<tr><td>59</td><td>P80</td><td>O</td><td>A RRWD</td><td>Deck A reel motor control</td></tr>
<tr><td>60</td><td>P93</td><td>O</td><td>A SOL</td><td>Deck A solenoid control</td><td>H : ON,
L : OFF</td></tr>
<tr><td>61</td><td>P92</td><td>O</td><td>A CPM</td><td>Deck A capstan motor control</td><td>H : ON
L : OFF</td></tr>
<tr><td>62</td><td>P91</td><td>O</td><td>A HOLD</td><td>Deck A solenoid control</td><td></td></tr>
<tr><td>63</td><td>P90</td><td>O</td><td>A CSP</td><td>Deck A capstan motor speed control</td><td>H : Normal speed
L : High speed</td></tr>
<tr><td>64</td><td>V_{ss}</td><td>O</td><td>—</td><td>Connected to GND.</td><td></td></tr>
</table>

CIRCUIT DESCRIPTION

IC201: μPD7537ACU-214 (X14-2690-21) Microprocessor (slave)

Pin connection


RESET 1
CL1 2
CL2 3
VPRE 4
VLOAD 5
KR4 P53 6
KR3 P52 7
KR2 P51 8
KR1 P50 9
N.C. P23 10
SSRQ P22 11
SRPM P21 12
G8 P103 13
G7 P102 14
G6 P101 15
G5 P100 16
G4 P113 17
G3 P112 18
G2 P111 19
G1 P110 20
VDD 21
42 VSS
41 P00/INT0 MSRQ
40 P01/SCK SCK
39 P02/SO SO
38 P03/SI SI
37 P30 S1 (p)
36 P31 S2 (o)
35 P32 S3 (n)
34 P33 S4 (m)
33 P40 S5 (l)
32 P41 S6 (k)
31 P42 S7 (j)
30 P43 S8 (i)
29 P80 S9(h)
28 P81 S10 (g)
27 P82 S11 (f)
26 P83 S12 (e)
25 P90 S13 (d)
24 P91 S14 (c)
23 P92 S15 (b)
22 P93 S16 (a)

Pin Functions

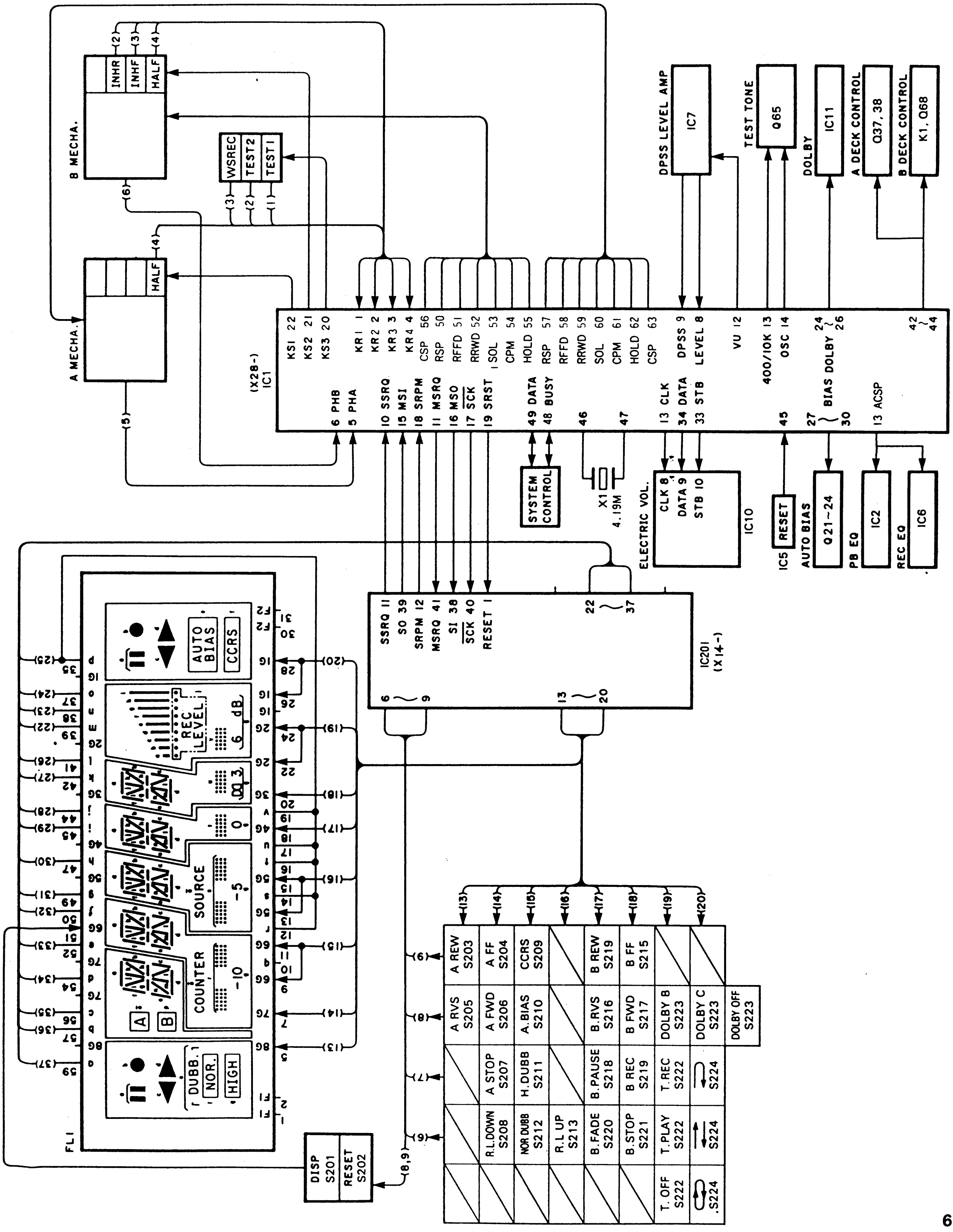
Pin No.	Pin name	I/O	Symbol	Function
1	RESET	I	RESET	Reset input pin H : Reset L : Normal
2	CL1	I	—	Ceramic OSC connection pin, 600 kHz
3	CL2	O	—	Ceramic OSC connection pin, 600 kHz
4	V_{PRE}	—	—	FL driver predriver power supply pin
5	V_{LOAD}	—	—	FL driver negative power supply pin
6	P53	I	KR4	Key switch input pin H : SW ON L : SW OFF
7	P52	I	KR3	Key switch input pin H : SW ON L : SW OFF
8	P51	I	KR2	Key switch input pin H : SW ON L : SW OFF
9	P50	I	KR1	Key switch input pin H : SW ON L : SW OFF
10	P23	O	—	
11	P22	O	SSRQ	Slave microprocessor send request signal output H : With send request L : Without send request

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Function
12	P21	O	SRPM	Slave microprocessor reception acknowledge output H : Reception OK L : Reception NG
13	P103	O	G8	Grid drive and key scan output H : ON L : OFF
14	P102	O	G7	Grid drive and key scan output H : ON L : OFF
15	P101	O	G6	Grid drive and key scan output H : ON L : OFF
16	P100	O	G5	Grid drive and key scan output H : ON L : OFF
17	P113	O	G4	Grid drive and key scan output H : ON L : OFF
18	P112	O	G3	Grid drive and key scan output H : ON L : OFF
19	P111	O	G2	Grid drive and key scan output H : ON L : OFF
20	P110	O	G1	Grid drive and key scan output H : ON L : OFF
21	V_{DD}	—	—	+B power supply pin (+5 V)
22	P93	O	S16 (a)	FL segment drive output
23	P92	O	S15 (b)	FL segment drive output
24	P91	O	S14 (c)	FL segment drive output
25	P90	O	S13 (d)	FL segment drive output
26	P83	O	S12 (e)	FL segment drive output
27	P82	O	S11 (f)	FL segment drive output
28	P81	O	S10 (g)	FL segment drive output
29	P80	O	S9 (h)	FL segment drive output
30	P43	O	S8 (i)	FL segment drive output
31	P42	O	S7 (j)	FL segment drive output
32	P41	O	S6 (k)	FL segment drive output
33	P40	O	S5 (l)	FL segment drive output
34	P33	O	S4 (m)	FL segment drive output
35	P32	O	S3 (n)	FL segment drive output
36	P31	O	S2 (o)	FL segment drive output
37	P30	O	S1 (p)	FL segment drive output
38	P03/SI	I	SI	Master-slave communication serial data input H : 1 L : 0
39	P02/SO	O	SO	Master-slave communication serial data output H : 1 L : 0
40	P01/$\overline{\text{SCK}}$	I	SCK	Master-slave communication serial data clock input
41	P00/INTO	I	MSRQ	Master send request signal input
42	V_{ss}	—	—	GND pin

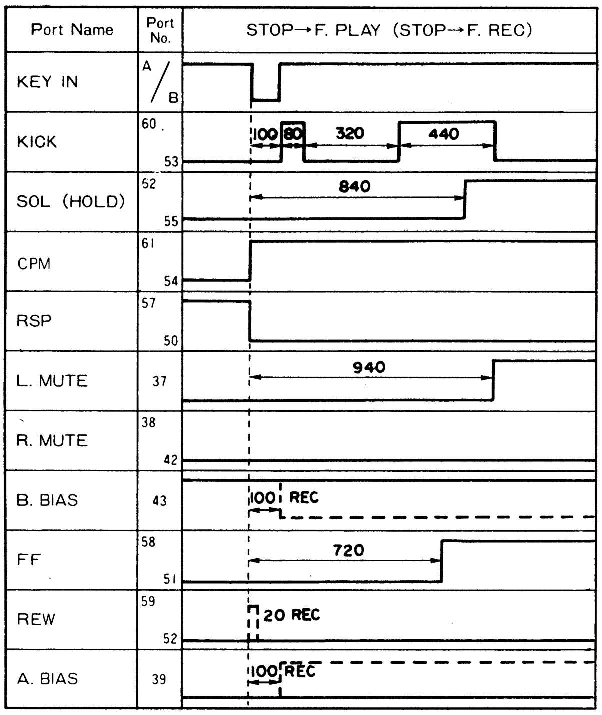
CIRCUIT DESCRIPTION

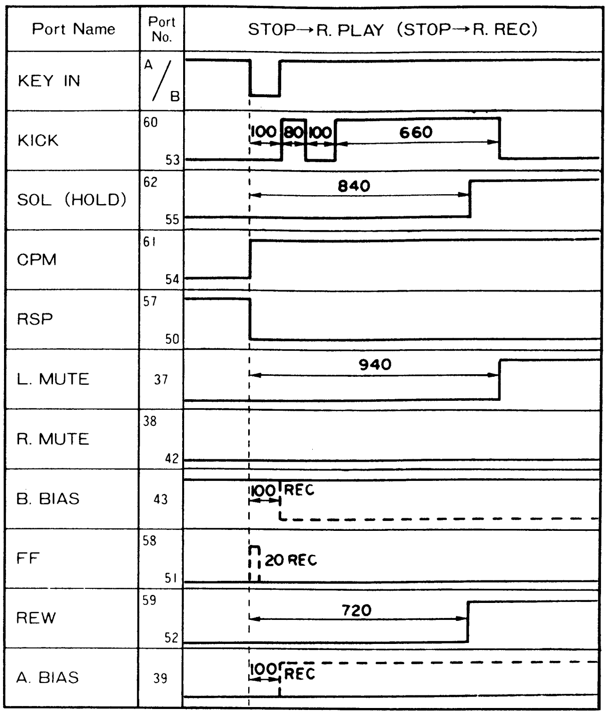
Block Diagram (microprocessor peripherals)

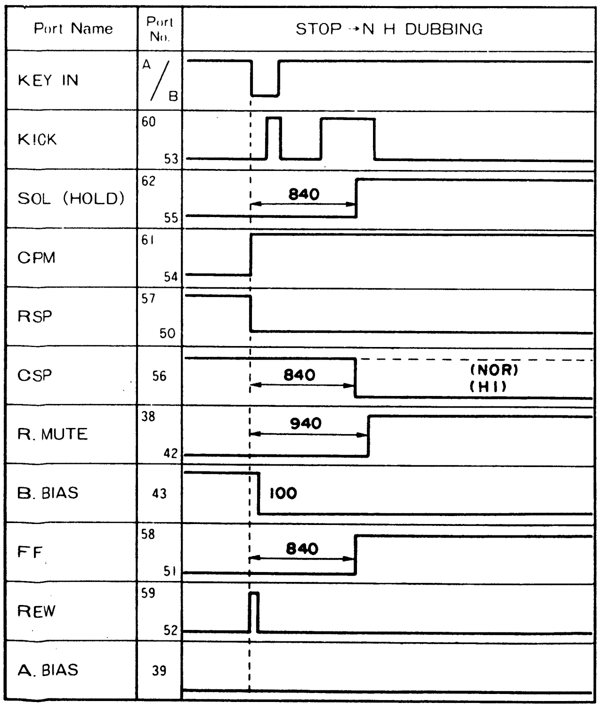

B MECHA.
INHR
INHF
HALF
A MECHA.
WSREC
TEST2
TEST1
DPSS LEVEL AMP
IC7
TEST TONE
Q65
DOLBY
IC11
A DECK CONTROL
Q37, 38
B DECK CONTROL
K1, Q68
(X28-)
IC1
KS1 22
KS2 21
KS3 20
KR1 1
KR2 2
KR3 3
KR4 4
CSP 56
RSP 50
RFFD 51
RRWD 52
SOL 53
CPM 54
HOLD 55
RSP 57
RFFD 58
RRWD 59
SOL 60
CPM 61
HOLD 62
CSP 63
DPSS 9
LEVEL 8
VU 12
400/10K 13
OSC 14
24 ~ 26 BIAS DOLBY
42 ~ 44
6 PHB
5 PHA
10 SSRQ
15 MSI
18 SRPM
11 MSRQ
16 MSO
17 SCK
19 SRST
49 DATA
48 BUSY
46
47
13 CLK
34 DATA
33 STB
45
27 ~ 30 BIAS
13 ACSP
SYSTEM CONTROL
X1 4.19M
ELECTRIC VOL.
CLK 8
DATA 9
STB 10
IC10
IC5 RESET
AUTO BIAS
Q21~24
PB EQ
IC2
REC EQ
IC6
IC201 (X14-)
SSRQ 11
SO 39
SRPM 12
MSRQ 41
SI 38
SCK 40
RESET 1
22 ~ 37
6 ~ 9
13 ~ 20
FL1
AUTO BIAS
CCRS
REC LEVEL
6 dB
00.3
0
SOURCE
-5
COUNTER
-10
A
B
DUBB. 1
NOR.
HIGH
A REW S203
A FF S204
CCRS S209
B REW S219
B FF S215
A RVS S205
A FWD S206
A.BIAS S210
B.RVS S216
B FWD S217
DOLBY B S223
DOLBY C S223
DOLBY OFF S223
A STOP S207
H.DUBB S211
B.PAUSE S218
B REC S219
T.REC S222
S224
R.L.DOWN S208
NOR DUBB S212
R.L UP S213
B.FADE S220
B.STOP S221
T.PLAY S222
S224
T. OFF S222
S224
DISP S201
RESET S202
(8,9)

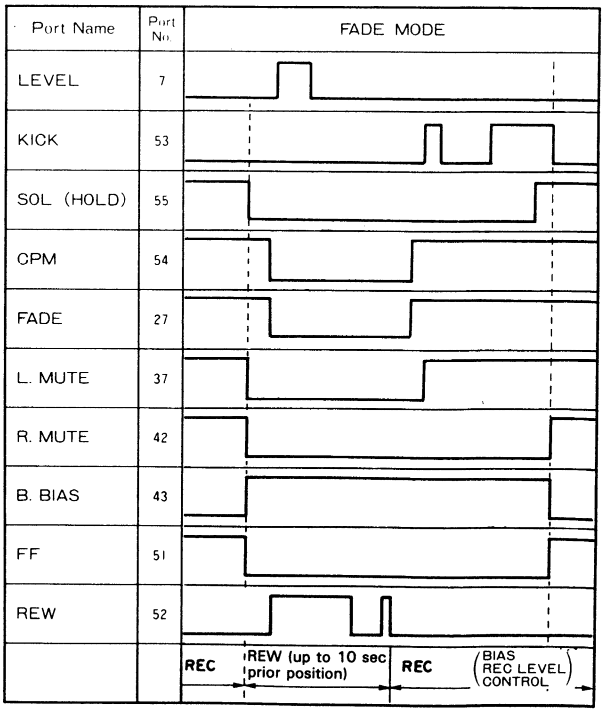
CIRCUIT DESCRIPTION

TIMING CHART

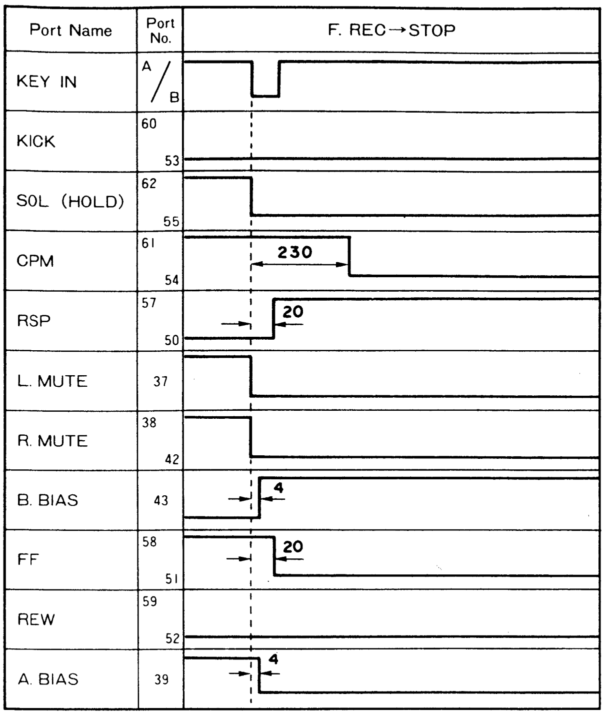

Port Name
Port No.
STOP→F. PLAY (STOP→F. REC)
KEY IN
A / B
KICK
60
53
100
80
320
440
SOL (HOLD)
52
55
840
CPM
61
54
RSP
57
50
L. MUTE
37
940
R. MUTE
38
42
B. BIAS
43
100
REC
FF
58
51
720
REW
59
52
20 REC
A. BIAS
39
100
REC

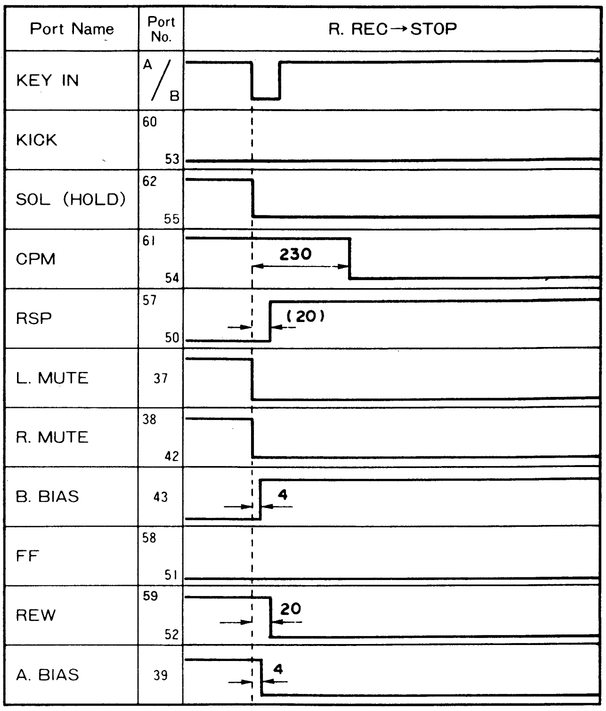

Port Name
Port No.
STOP→R. PLAY (STOP→R. REC)
KEY IN
A / B
KICK
60
53
100
80
100
660
SOL (HOLD)
62
55
840
CPM
61
54
RSP
57
50
L. MUTE
37
940
R. MUTE
38
42
B. BIAS
43
100
REC
FF
58
51
20 REC
REW
59
52
720
A. BIAS
39
100
REC

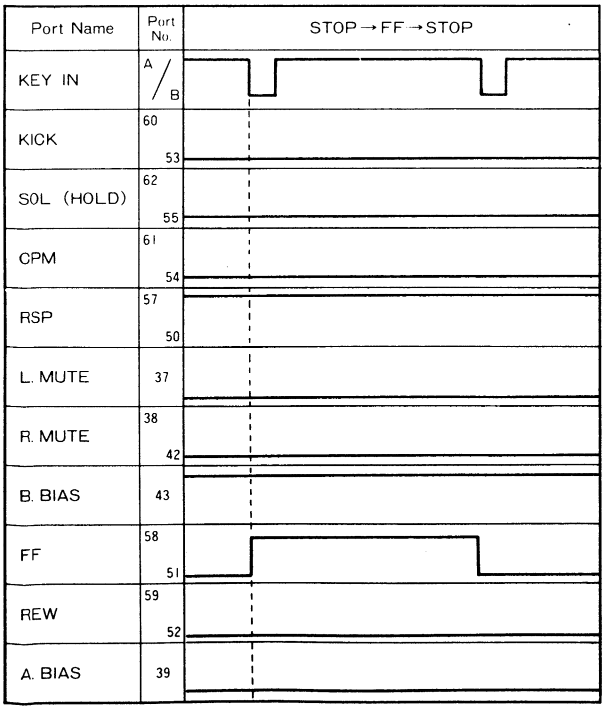

Port Name
Port No.
STOP →N H DUBBING
KEY IN
A / B
KICK
60
53
SOL (HOLD)
62
55
840
CPM
61
54
RSP
57
50
CSP
56
840
(NOR)
(HI)
R. MUTE
38
42
940
B. BIAS
43
100
FF
58
51
840
REW
59
52
A. BIAS
39

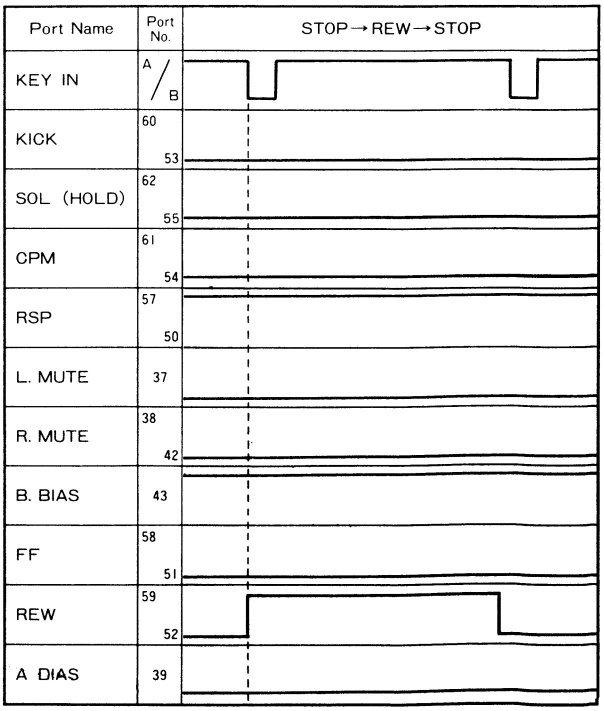

Port Name
Port No.
FADE MODE
LEVEL
7
KICK
53
SOL (HOLD)
55
CPM
54
FADE
27
L. MUTE
37
R. MUTE
42
B. BIAS
43
FF
51
REW
52
REC
REW (up to 10 sec prior position)
REC
BIAS
REC LEVEL
CONTROL

CIRCUIT DESCRIPTION

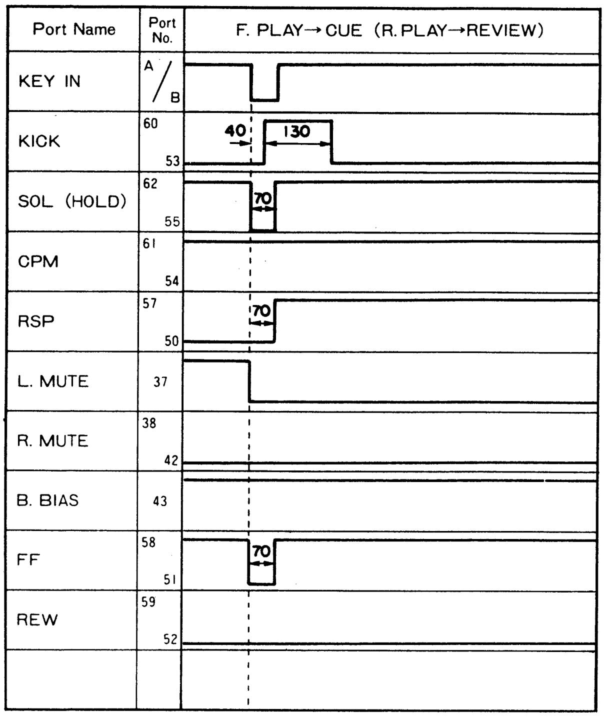

Port Name
Port No.
F. REC→STOP
KEY IN A/B
KICK 60 53
SOL (HOLD) 62 55
CPM 61 54
230
RSP 57 50
20
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
4
FF 58 51
20
REW 59 52
A. BIAS 39
4

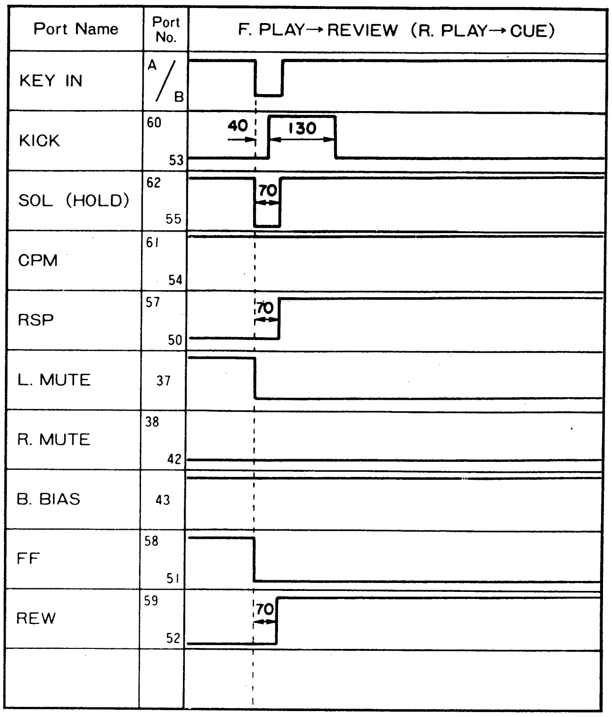

Port Name
Port No.
R. REC→STOP
KEY IN A/B
KICK 60 53
SOL (HOLD) 62 55
CPM 61 54
230
RSP 57 50
(20)
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
4
FF 58 51
REW 59 52
20
A. BIAS 39
4

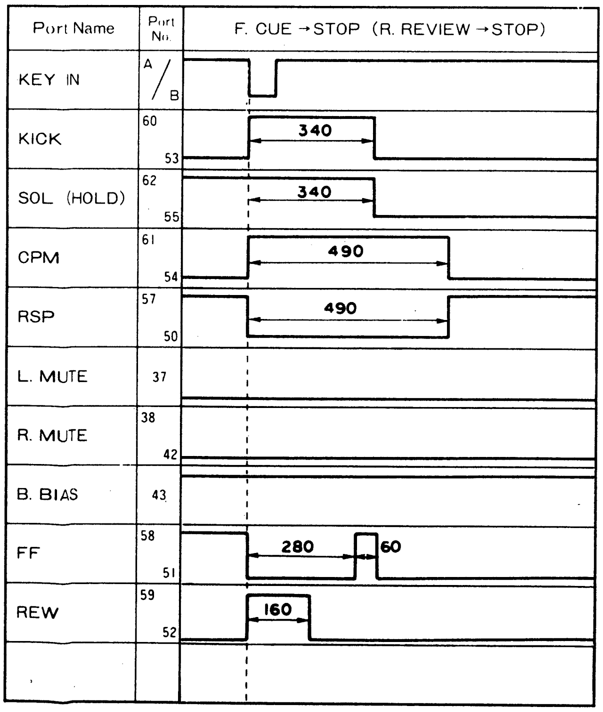

Port Name
Port No.
STOP→FF→STOP
KEY IN A/B
KICK 60 53
SOL (HOLD) 62 55
CPM 61 54
RSP 57 50
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
FF 58 51
REW 59 52
A. BIAS 39

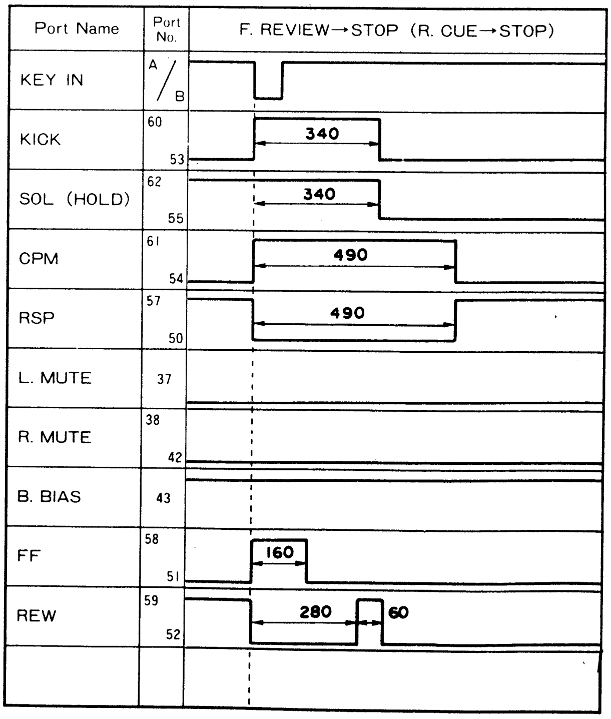

Port Name
Port No.
STOP→REW→STOP
KEY IN A/B
KICK 60 53
SOL (HOLD) 62 55
CPM 61 54
RSP 57 50
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
FF 58 51
REW 59 52
A DIAS 39

CIRCUIT DESCRIPTION


Port Name
Port No.
F. PLAY→CUE (R. PLAY→REVIEW)
KEY IN A/B
KICK 60 53
40
130
SOL (HOLD) 62 55
70
CPM 61 54
RSP 57 50
70
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
FF 58 51
70
REW 59 52


Port Name
Port No.
F. PLAY→REVIEW (R. PLAY→CUE)
KEY IN A/B
KICK 60 53
40
130
SOL (HOLD) 62 55
70
CPM 61 54
RSP 57 50
70
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
FF 58 51
REW 59 52
70


Port Name
Port No.
F. CUE →STOP (R. REVIEW →STOP)
KEY IN A/B
KICK 60 53
340
SOL (HOLD) 62 55
340
CPM 61 54
490
RSP 57 50
490
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
FF 58 51
280
60
REW 59 52
160


Port Name
Port No.
F. REVIEW→STOP (R. CUE→STOP)
KEY IN A/B
KICK 60 53
340
SOL (HOLD) 62 55
340
CPM 61 54
490
RSP 57 50
490
L. MUTE 37
R. MUTE 38 42
B. BIAS 43
FF 58 51
160
REW 59 52
280
60

CIRCUIT DESCRIPTION

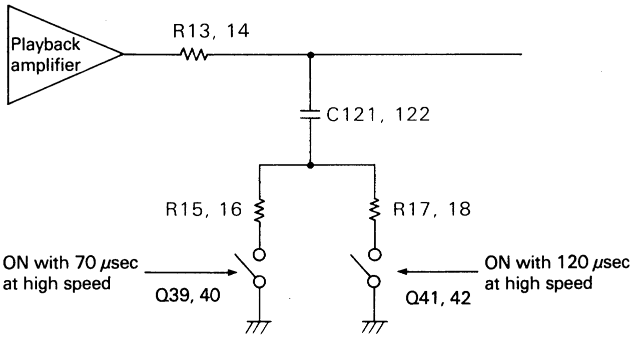
CCRS double speed recording circuit

For the CCRS double speed recording, the multiplex filter of the Dolby input circuit is to be passed for CCRS owing to the turn-ON of Q23 and Q24.

In the CCRS double speed mode, 20 Hz to 20 kHz of signals are made 40 Hz to 40 kHz, so that signals are output flat.

As to the deck recording EQ, the tape-to-tape EQ (double speed) is used for the CD double-speed mode.

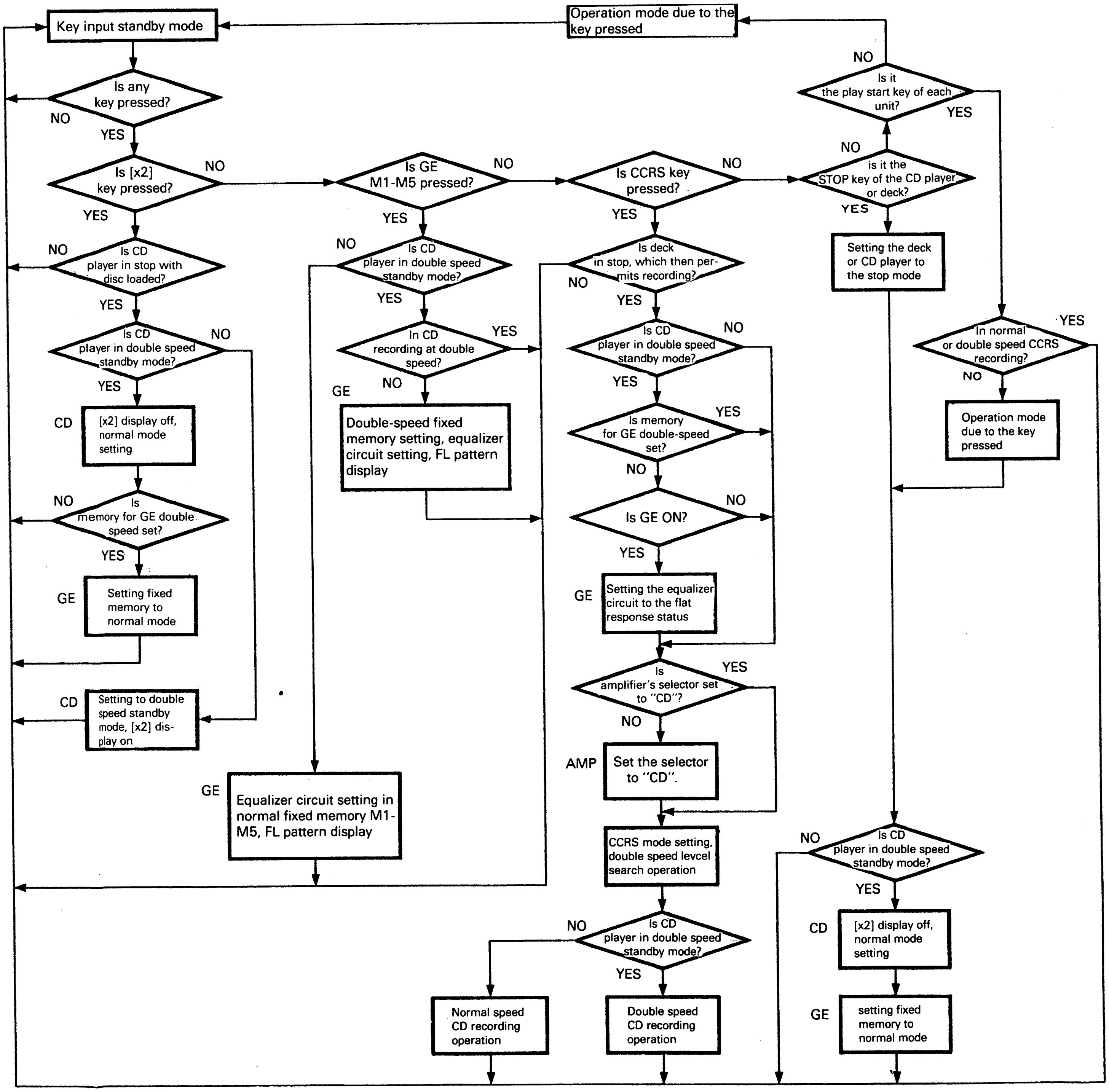
When deck A is played at double speed, modification is applied to the playback EQ circuit so that the frequency response is flat on either time constant 120 μsec or 70 μsec. (Diagram below)


Playback amplifier
R13, 14
C121, 122
R15, 16
R17, 18
ON with 70 μsec at high speed
Q39, 40
ON with 120 μsec at high speed
Q41, 42

In addition, as regards the playback amplifier, time constant 120 μsec is engaged at the double speed mode.

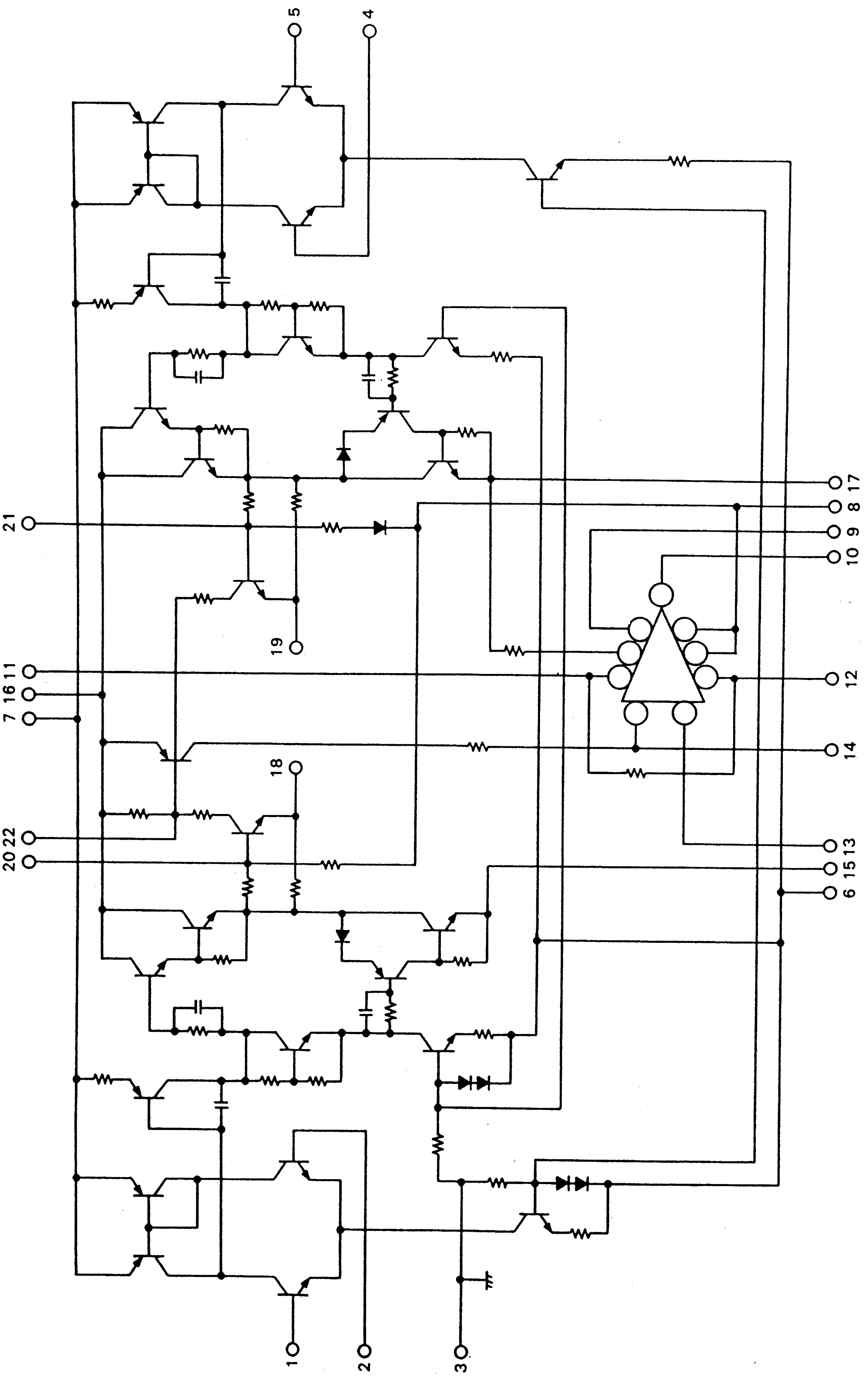
CIRCUIT DESCRIPTION

Flow of operation in CCRS double speed recording


Key input standby mode
Operation mode due to the key pressed
Is any key pressed?
NO
YES
Is [x2] key pressed?
NO
YES
Is GE M1-M5 pressed?
NO
YES
Is CCRS key pressed?
NO
YES
is it the STOP key of the CD player or deck?
NO
YES
Is it the play start key of each unit?
NO
YES
Is CD player in stop with disc loaded?
NO
YES
Is CD player in double speed standby mode?
NO
YES
CD
[x2] display off, normal mode setting
Is memory for GE double speed set?
NO
YES
GE
Setting fixed memory to normal mode
CD
Setting to double speed standby mode, [x2] display on
Is CD player in double speed standby mode?
NO
YES
In CD recording at double speed?
YES
NO
GE
Double-speed fixed memory setting, equalizer circuit setting, FL pattern display
GE
Equalizer circuit setting in normal fixed memory M1-M5, FL pattern display
Is deck in stop, which then permits recording?
NO
YES
Is CD player in double speed standby mode?
NO
YES
Is memory for GE double-speed set?
YES
NO
Is GE ON?
NO
YES
GE
Setting the equalizer circuit to the flat response status
Is amplifier's selector set to "CD"?
YES
NO
AMP
Set the selector to "CD".
CCRS mode setting, double speed levcel search operation
Is CD player in double speed standby mode?
NO
YES
Normal speed CD recording operation
Double speed CD recording operation
Setting the deck or CD player to the stop mode
In normal or double speed CCRS recording?
YES
NO
Operation mode due to the key pressed
Is CD player in double speed standby mode?
NO
YES
CD
[x2] display off, normal mode setting
GE
setting fixed memory to normal mode

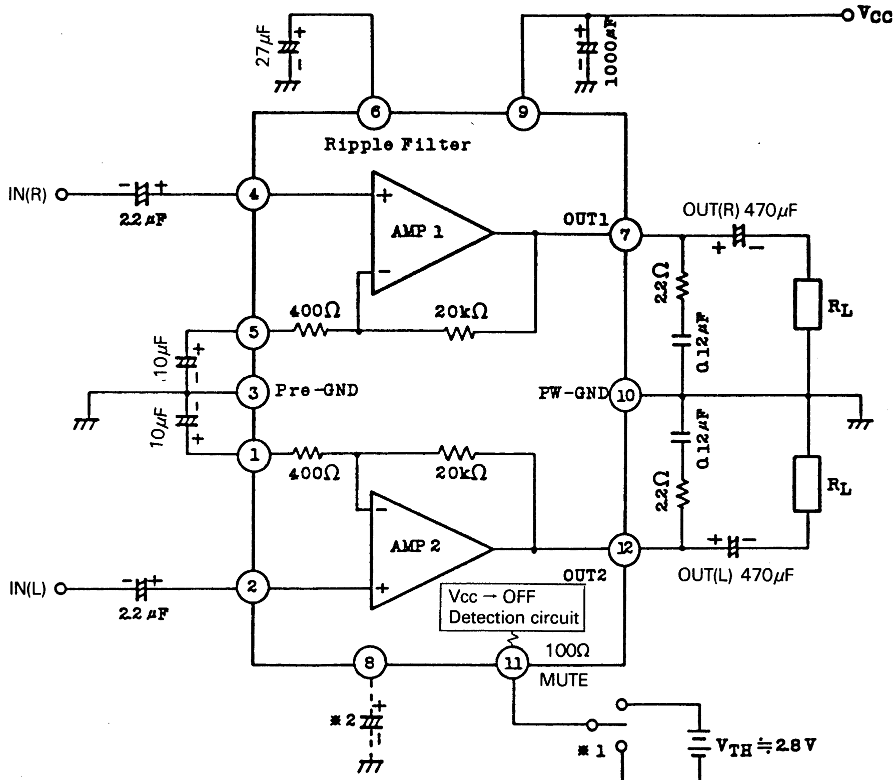
CIRCUIT DESCRIPTION

IC3: STK4184/5 (X09-3000-21) internal equivalent circuit
Power IC for front speaker


5
4
17
8
9
10
21
19
11
16
7
12
14
18
22
20
13
15
6
1
2
3

CIRCUIT DESCRIPTION

IC7: TA8200AH (X09-3000-21)
Power IC for rear speaker


Vcc
27µF
1000µF
6
9
Ripple Filter
IN(R)
2.2µF
4
AMP 1
OUT1
7
OUT(R) 470µF
400Ω
20kΩ
2.2Ω
0.12µF
RL
5
10µF
3
Pre-GND
PW-GND
10
10µF
1
400Ω
20kΩ
0.12µF
2.2Ω
RL
AMP 2
12
OUT2
OUT(L) 470µF
IN(L)
2.2µF
2
Vcc → OFF
Detection circuit
100Ω
8
11
MUTE
*2
*1
VTH ≒ 2.8V

*1: Mute ON when pin 11 becomes "L"

*2: Capacitor to alleviate pop sound at mute ON

DC voltage of each pin:

Standard values in measurement circuit, Vcc=28V, Ta=25°C

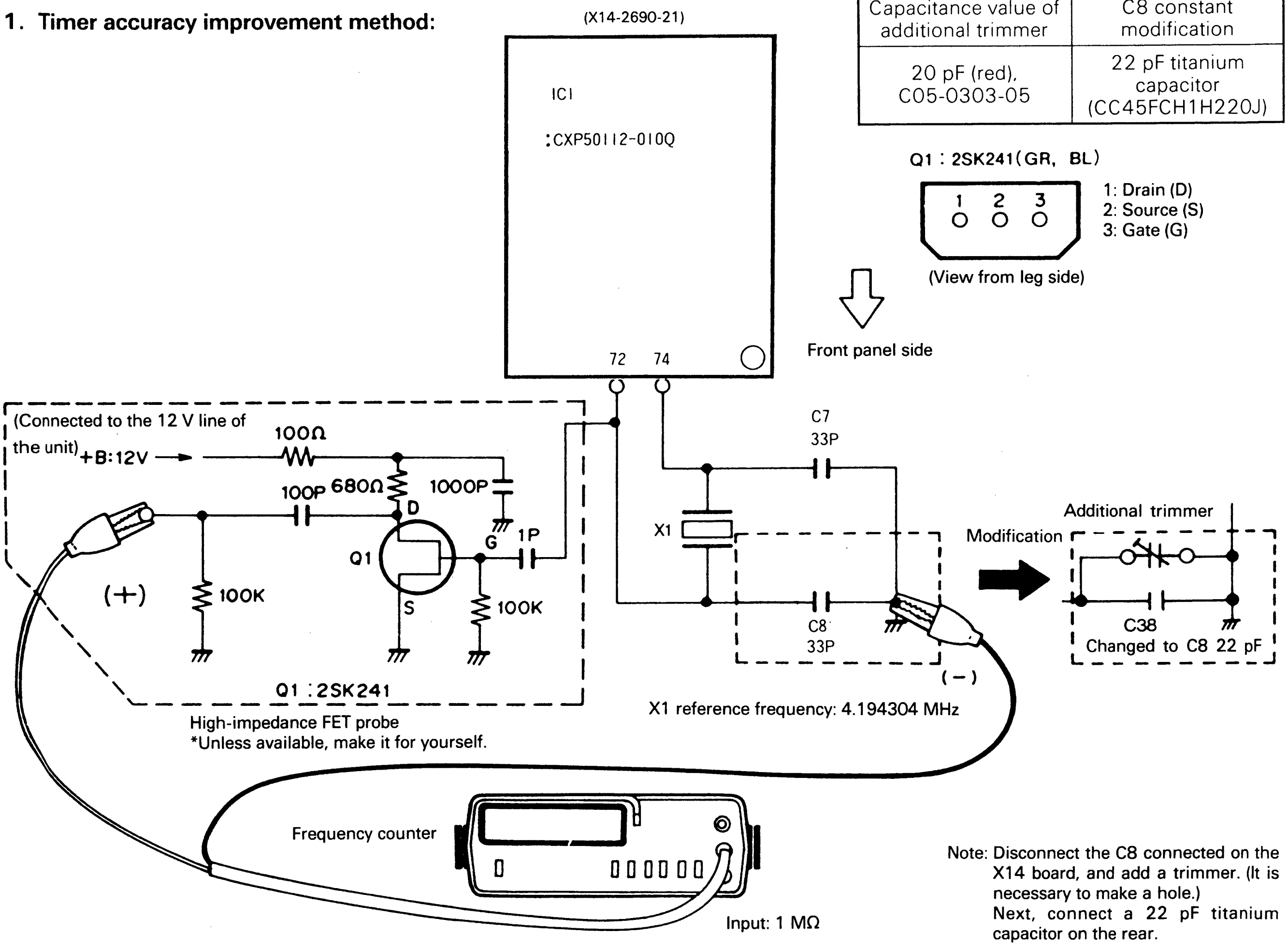
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
DC voltage (V)	1.6	20m	GND	20m	1.6	2.4	13.0	5.0	Vcc	GND	2.8	13.0

CIRCUIT DESCRIPTION

SERVICE POINT

1. Timer accuracy improvement method:

Capacitance value of additional trimmer	C8 constant modification
20 pF (red), C05-0303-05	22 pF titanium capacitor (CC45FCH1H220J)


(X14-2690-21)
IC1
:CXP50112-010Q
72
74
Q1 : 2SK241(GR, BL)
1 2 3
1: Drain (D)
2: Source (S)
3: Gate (G)
(View from leg side)
Front panel side
(Connected to the 12 V line of the unit)+B:12V
100Ω
100P
680Ω
1000P
D
G
1P
Q1
S
(+)
100K
100K
Q1 :2SK241
High-impedance FET probe
*Unless available, make it for yourself.
C7
33P
X1
C8
33P
(−)
X1 reference frequency: 4.194304 MHz
Modification
Additional trimmer
C38
Changed to C8 22 pF
Frequency counter
Input: 1 MΩ

Note: Disconnect the C8 connected on the X14 board, and add a trimmer. (It is necessary to make a hole.)
Next, connect a 22 pF titanium capacitor on the rear.

The timer accuracy is within ±40 seconds for one month as a standard. For improved timer accuracy, perform the following procedure:

(1) If the timer accuracy is without the standard, replace X1 (L77-1176-05) near the microprocessor IC on a printed board (X14-).

(2) Even if within the standard, for further improved accuracy, change the constant of C8 in the crystal oscillation circuit of microprocessor IC1 and add a trimmer.

Adjustment method (Use a high-impedance buffer to avoid frequency deviation.)
Connect a high-accuracy frequency counter to pin 72 by way of the FET probe shown above, and adjust the frequency fully up to the first digit of the X1 reference frequency 4,194,304 Hz. (Connect the negative (−) side of the frequency counter to the GND side of C8.)

Notes: 1. As regards the positive (+) side of the frequency counter, arrange as short a distance as possible between pin ⑫ of IC1 and 1P of the input stage of the FET probe.

2. Perform the trimmer adjustment after energization of around 10 minutes at normal temperature.

(3) Monthly error calculation method
For example, when the result of measurement at pin 72 by the frequency counter is fx=4,194,275 Hz...
(Reference frequency fo=4,194,304 [Hz])

$$\text{Monthly error [sec]} = \frac{fx - fo}{fo} \times \text{the number of seconds taken for one month}$$

$$= \frac{4,194,275 - 4,194,304}{4,194,304} \times (60 \times 60 \times 24 \times 30)$$

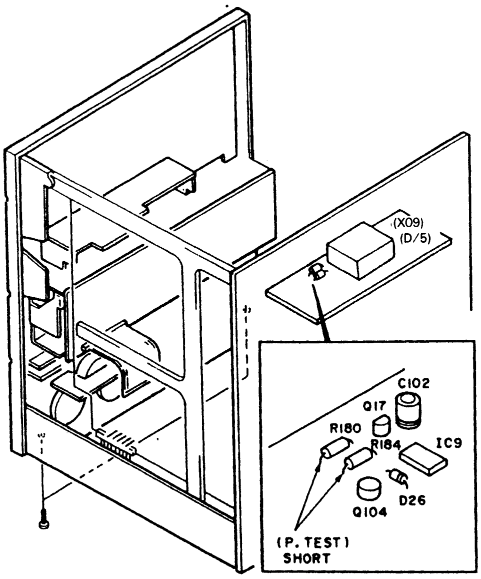
$$= -17.9 \text{ [sec]}$$

* A minus value as the monthly error means a loss.

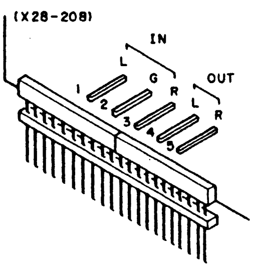
CIRCUIT DESCRIPTION

2. How to operate the cassette mechanism while seeing it

(1) When checking the cassette mechanism operation with the front panel left side opened like a door, it is necessary to disconnect the 40-pin flexible cable running between the main board (X09-A/5) and the graphic equalizer board (X11-C/3).
At this time, when the AC power cord is plugged in with a shorting of the left leads of silkscreened R180 and R184 with the "P.TEST" on the small transformer board (X09-D/5) installed to the rear panel, the cassette deck section (X28) is powered. In this connection, the FL tube of the cassette deck section does not light but the cassette deck section is capable of normal operation. Make use of this advantage where necessary.



(2) At this time, I/O signals are possible through pins 1-5 in the lower portion of the tuner cassette board (X28-2080-21). An output can be checked connected with an oscilloscope, etc.



Pin No.	Pin function
1	L-ch input
2	GND
3	R-ch input
4	L-ch output
5	R-ch output

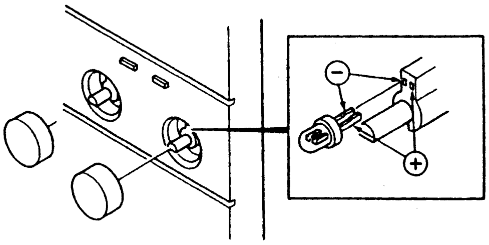
3. Service 40-pin extension flexible cable

When detaching the front panel from the main body for the continuity check, this involves disconnecting the regular 40-pin flexible cable running between the main board (X09) and the graphic equalizer board (X11) so that the continuity check is unfeasible.
To counter this, a service 40-pin extension flexible cable is prepared. Make use of this service where necessary.
The part number for the 40-pin extension flexible cable for RX-53 is: E31-4879-05.

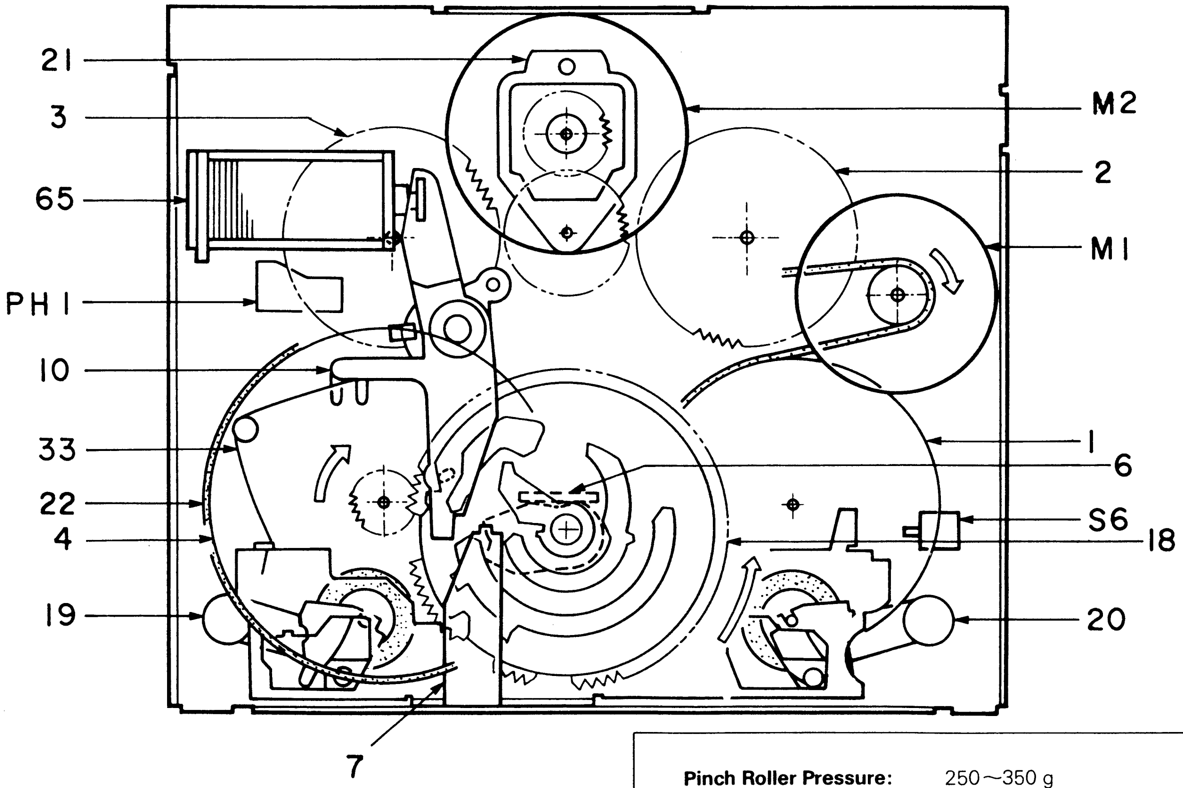
4. Volume LEDs (Part No. B30-1284-08)

Basically, these volume LEDs are parts of the master volume assy and rear volume control assy. When either LED is defective, it is possible to detach the volume knob and take out the LED easily using pincettes.

Volume LED



MECHANISM OPERATION DESCRIPTION



Pinch Roller Pressure:	250〜350 g
Take-up Torque:	30〜70 g·cm (2.5 V)
FF. REW Torque:	90〜180 g·cm (3.8 V)
Back Tension Torque:	2〜6 g·cm

RX-53 is not provided with Auto Reverse Function. This description and drawings are based on the Auto Reverse Mechanism.

STOP to FWD PLAY/REC Operation

Press the PLAY key.

Only in the STOP to REC mode, the REEL MOTOR rotates in the REW direction for 20 msec. to rewind the tape slightly.

By a signal from the microcomputer, the CAPSTAN MOTOR M1 rotates, and the SOLENOID (65) turns ON.

The PLAY ARM (10) swings in the direction of the arrow (➡ Ⓐ).

The pin Ⓑ of the PLAY ARM is released from the stopper section Ⓒ of the CAM GEAR (18).

The CAM GEAR rotates slightly and engages with the gear of the FLYWHEEL (4).

After a while, the SOLENOID turns OFF.

Since the SLIDER (7) is pushed by the torsion spring (33) in the direction of the arrow (➡), the protrusion swings along the orbit Ⓗ .

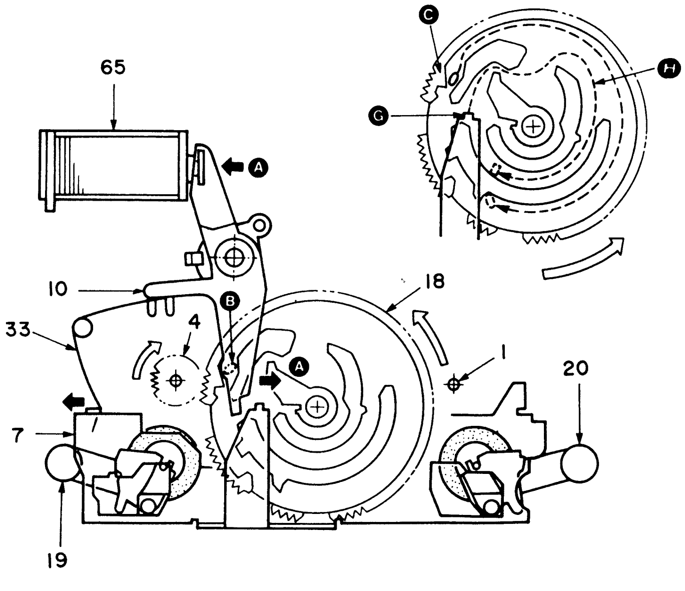


Fig. 2 STOP to FWD (forward) PLAY/REC operation

MECHANISM OPERATION DESCRIPTION

The bending section Ⓔ of the HEAD BASE (6) is lifted by the cam Ⓕ of the CAM GEAR and begins moving upward.

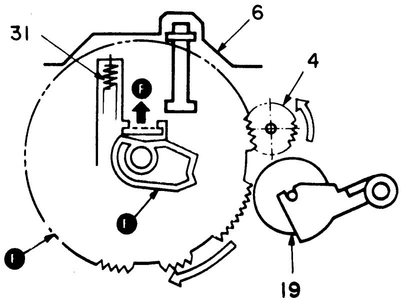


Fig. 3 (Front side view)

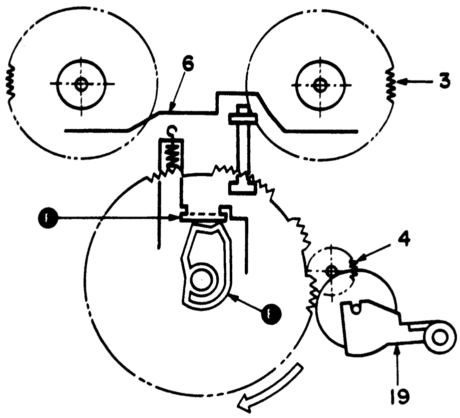


Fig. 4 STOP→PLAY/REC (Front side view)

When the CAM GEAR is rotated by about 3/4 of a revolution, the pin Ⓑ of the PLAY ARM comes into contact with the stopper Ⓓ of the CAM GEAR.
At this time, the non-tooth section of the CAM GEAR reaches the gear of the FLYWHEEL, and the CAM GEAR stops rotating.
When the HEAD BASE comes to the top end, the boss Ⓛ of the pinch roller (L) comes into contact with the edge Ⓙ of the SLIDER and it does not press the capstan.
Since the boss Ⓚ of the pinch roller (R) is inserted into the groove of the SLIDER, it is pressed to the capstan and the deck enters the FWD PLAY mode.

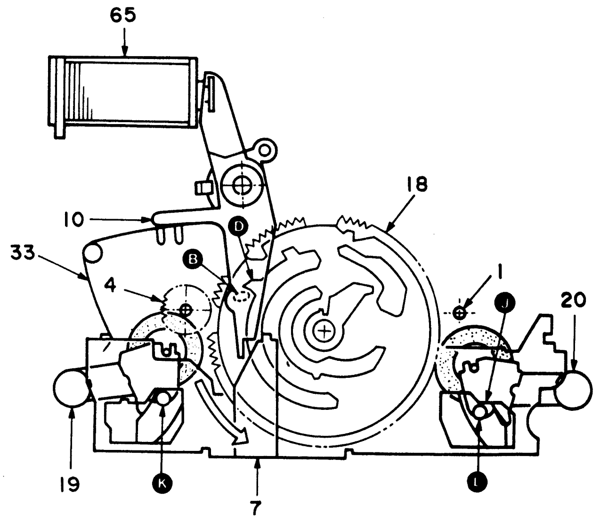


Fig. 5 FWD PLAY status

MECHANISM OPERATION DESCRIPTION

STOP to RVS (reverse) PLAY/REC Operation

Press the PLAY key.

Only in the STOP to REC mode, the REEL MOTOR rotates in the REW direction for 20 msec. to rewind the tape slightly.

By a signal from the microcomputer, the CAPSTAN MOTOR M1 rotates, and the SOLENOID (65) turns ON.

The PLAY ARM (10) swings in the direction of the arrow Ⓐ.

The pin Ⓑ of the PLAY ARM is released from the stopper section Ⓒ of the CAM GEAR (18).

The CAM GEAR rotates slightly and engages with the gear of the FLYWHEEL (4).

The SOLENOID turns OFF, and CAM GEAR is still rotating.

When the SOLENOID turns ON again, the protrusion Ⓖ is pushed by the edge Ⓛ of the PLAY ARM, and SWINGS along the orbit ➡ Ⓜ.

By the cam Ⓝ of the CAM GEAR, the SLIDER moves largely in the direction of the arrow

The bending section Ⓕ of the HEAD BASE (6) is lifted by the cam Ⓔ of the CAM GEAR and begins moving upward.

When the CAM GEAR is rotated by about 3/4 of a revolution, the pin Ⓑ of the PLAY ARM comes into contact with the stopper Ⓓ of the CAM GEAR.

At this time, the non-tooth section of the CAM GEAR reaches the gear of the FLYWHEEL, and the CAM GEAR stops rotating.

When the HEAD BASE comes to the top end, the boss Ⓚ of the pinch roller (R) comes into contact with the edge Ⓙ of the SLIDER and it does not press the capstan.

Since the boss Ⓙ of the pinch roller (L) is inseted into the groove of the SLIDER, it is pressed to the capstan and the deck enters the RVS (reverse) PLAY mode.

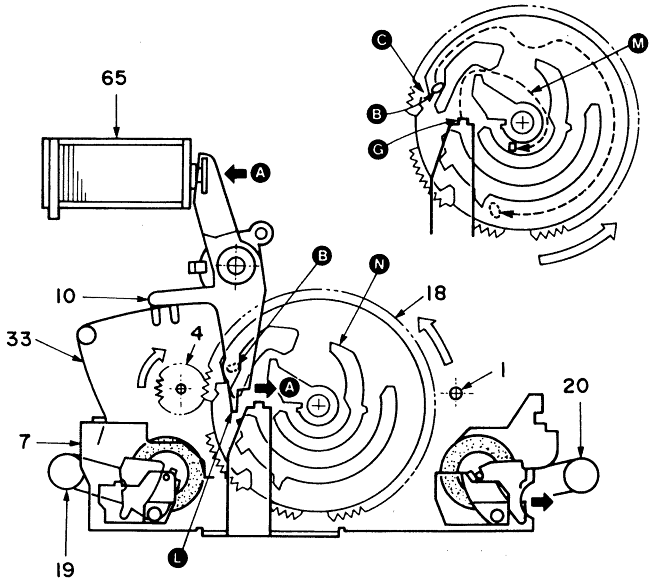


Fig. 6 STOP to RVS PLAY/REC operation

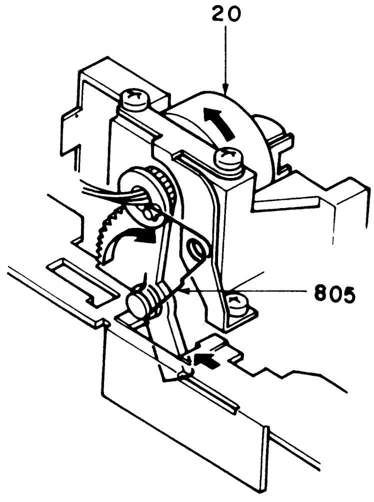


Fig. 7 Head selection (FWD to RVS)

MECHANISM OPERATION DESCRIPTION

FWD (forward) PLAY/REC to STOP Operation

Press the STOP key.
By a signal from the microcomputer, the SOLENOID (65) turns OFF.
The PLAY ARM (10) is swung in the direction of the arrow ⬅ Ⓐ by the TORSION SPRING (33), and the pin Ⓑ is released from the stopper Ⓓ.
The CAM GEAR is slightly rotated by the HEAD BASE in the direction of the arrow
The CAM GEAR is engaged with the gear of the FLYWHEEL (4) and continues rotating.
The protrusion Ⓖ of the SLIDER (7) passes through the orbit ⇢ Ⓟ.
When the pin Ⓑ of the PLAY ARM comes into contact with the stopperr Ⓒ of the CAM GEAR, the CAM GEAR stops rotating.
By the signal from the microcomputer, the CAPSTAN MOTOR stops and the deck enters the stop mode.

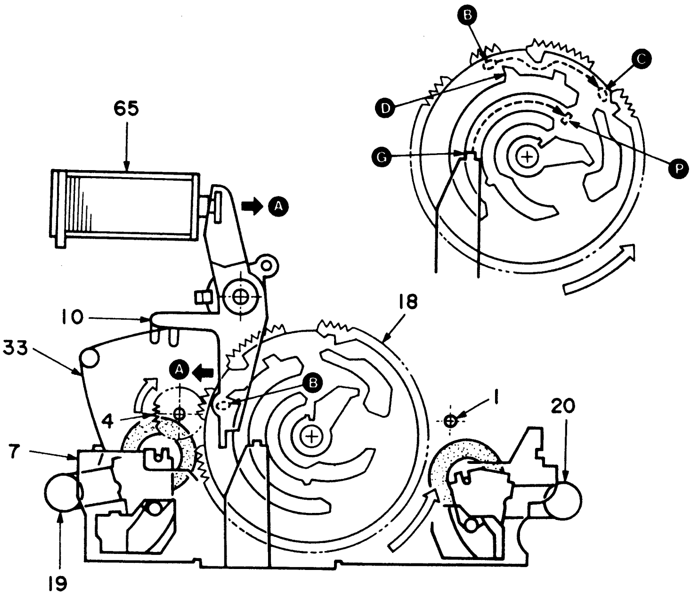


Fig. 8 FWD PLAY/REC to STOP operation

RVS (reverse) PLAY/REC to STOP Operation

Press the STOP key.
By a signal from the microcomputer, the SOLENOID (65) turns OFF.
The PLAY ARM (10) is swung in the direction of the arrow ⬅ Ⓐ by the TORSION SPRING (33), and the pin Ⓑ is released from the stopper Ⓓ.
The CAM GEAR is slightly rotated by the HEAD BASE in the direction of the arrow ⇨.
The CAM GEAR is engaged with the gear of the FLYWHEEL (4) and continues rotating.
The protrusion Ⓖ of the SLIDER (7) passes through the orbit ⇢ Ⓠ.
When the pin Ⓑ of the PLAY ARM comes into contact with the stopper Ⓒ of the CAM GEAR, the CAM GEAR stops rotating.
By the signal from the microcomputer, the CAPSTAN MOTOR stops and the deck enters the stop mode.

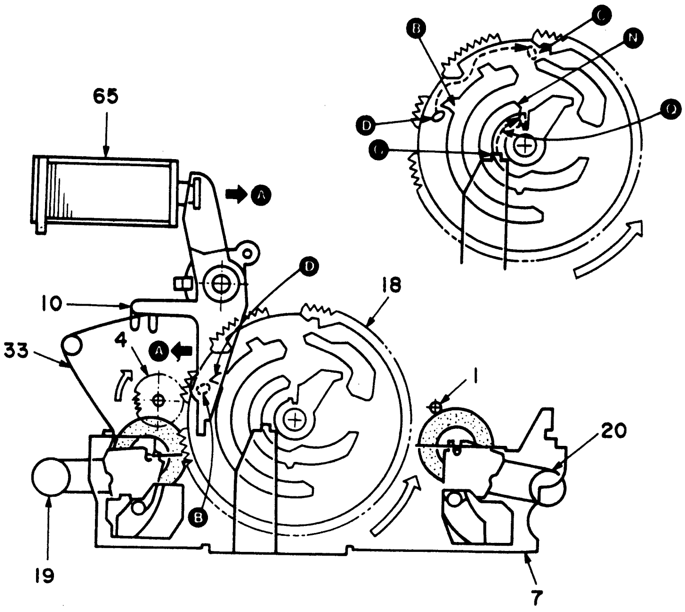


Fig. 9 RVS PLAY/REC to STOP operation

MECHANISM OPERATION DESCRIPTION

STOP to FF/REW Operation

By a signal from the microcomputer, the SOLENOID (65) turns ON. At the same time, the REEL MOTOR M2 starts rotating in the appropiate direction. (REW: CW ⇦ , FF: ⇨ CCW)
According to the rotating direction of the REEL MOTOR, the IDLER ASS'Y (21) is swung in the appropriate direction. (REW: Ⓑ ⇦ , FF: ⇨ Ⓐ)
When the gear of the IDLER ASS'Y engages with the gear of the REEL ASS'Y (2, 3), the deck enters the FF/REW operation mode.

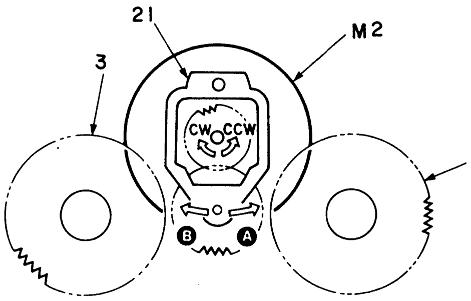


Fig. 10 (FRONT SIDE VIEW)

PLAY to CUE/REVIEW (REV) Operation

Press the FF/REW key during PLAY.
By a signal from the microcomputer, the SOLENOID (65) turns OFF.
The PLAY ARM (10) is swung in the direction of the arrow ⬅ Ⓐ by the TORSION SPRING (33), and the pin Ⓑ is released from the stopper Ⓓ .
After approx. 40 msec., the SOLENOID is turned ON again.
The pin Ⓑ of the PLAY ARM passed by the internal orbit, and then comes into contact with the stopper Ⓒ of the CAM GEAR.

At this time, the non-tooth section of the CAM GEAR comes to the gear of the FLYWHEEL, and the CAM GEAR stops rotating at the position where the HEAD BASE (6) is lowered slightly to that position.
The PINCH ROLLER (19, 20) is released from the CAPSTAN in accompanied with lowering movement of the HEAD BASE.
After a while, the CAPSTAN MOTOR stops rotating, and at the same time, the REEL MOTOR rotates in the appropriate direction to activate the CUE and REVIEW (REV) operations.

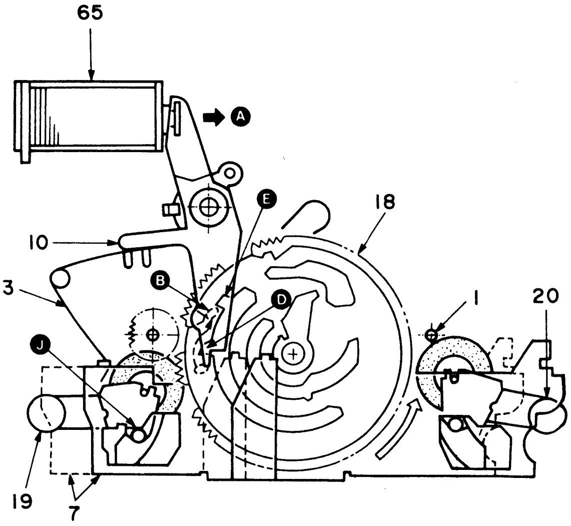


Fig. 11 PLAY to CUE/REV operation

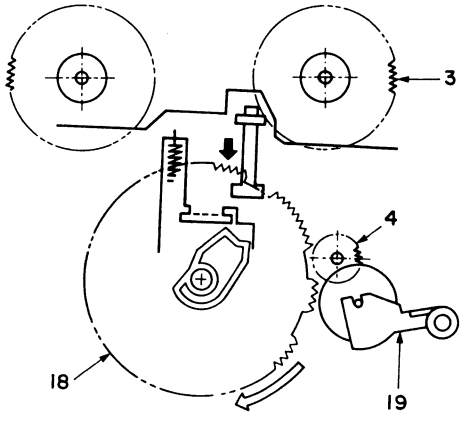


Fig. 12 CUE/REV status (Front side view)

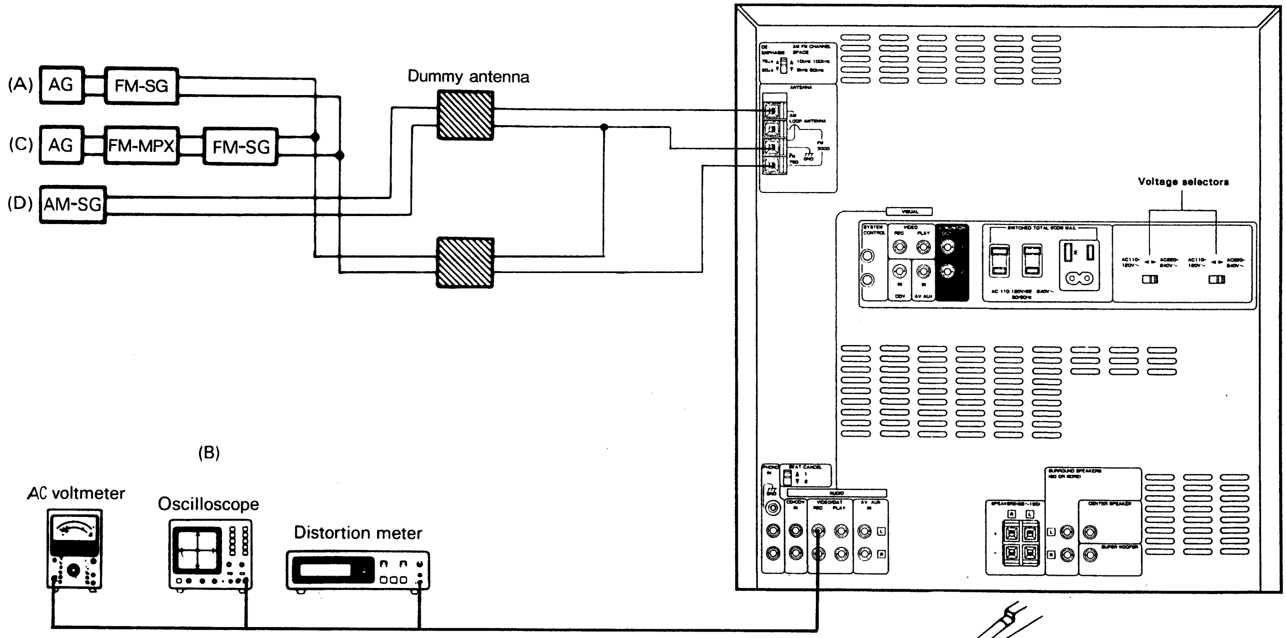
ADJUSTMENT

Adjustment

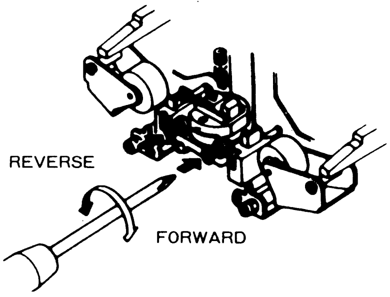
Adjustment items of tuner section

Order	Item	Input setting	Output setting	Tuner setting	Adjustment point	Adjustment method	Figure
Unless otherwise specified, set the respective switches as follows: FM section... Selector : FM, AUTO/MANUAL: AUTO, SLEEP: OFF For the input SG frequency to be used, select a frequency at around the center of the tuning dial around which no station's frequency is located.							
1	Discriminator (Monaural distortion adjustment is also made.)	(A), 98.0 MHz, 1 kHz, ±75 kHz dev., 60 dBμ (antenna input)	Connect a DC voltmeter between TP19 and TP20.	MONO 98.0 MHz	L19 (X28 -)	0V	(a)
2	VCO	(A), 98.0 MHz, 0 dev., 100 dBμ (antenna input)	Connect a resistor of 300 ohms to TP21 and connect a frequency counter via an AC voltmeter.	98.0 MHz	VR15 (X28 -)	19.00 kHz	(b)
3	Distortion rate (stereo)	(C), 98.0 MHz, 1 kHz, ±68.25 kHz dev., Selector: L or R, 60 dBμ (antenna input)	(B)	98.0 MHz	T1 (X86 -) (front-end)	Minimize the distortion.	
4	Tuning level	(A), 98.0 MHz, 0 dev., 18 dBμ (antenna input)	(B)	98.0 MHz	VR14 (X28 -)	Adjust to a position at which "TUNED" of FLI (X14) starts to light.	

Connection


(A) AG FM-SG
(C) AG FM-MPX FM-SG
(D) AM-SG
Dummy antenna
Voltage selectors
(B)
AC voltmeter
Oscilloscope
Distortion meter

Azimuth adjustment (d)


REVERSE
FORWARD

ADJUSTMENT

Adjustment items of deck section

Order	Item	Input setting	Output setting	Tuner setting	Adjustment point	Adjustment method	Figure
Unless otherwise specified, set the respective switches as follows: 0 dBs = 0.775V TAPE: NORMAL DOLBY: OFF INPUT: LINE BEAT CANSEL: S1 → 1 I. Cassette mechanism section (R/P head adjustment)							
[1]	Degaussing and cleaning	—	—	Power: OFF, Degaussing, Cleaning, Play	Recording head, Erase head, Capstan, Pinch roller (Decks A and B)	Degauss R/P head by head eraser. Clean R/P head, erase head, capstan, pinch roller by a cotton swab soaked with alcohol.	
[2]	R/P head azimuth	TCC-153 MTT-114 10 kHz, −10 dB	(B)	PLAY	Azimuth adjustment screw (Decks A and B) (FWD, RVS)	Maximize the output and adjust so that Lissajous pattern on oscilloscope nears a line slanted 45°.	(c)
II. Printed board adjustment (X28-2080)							
<1>	Tape speed (double speed)	TCC-110 MTT-111 3 kHz	(B)	Connect TP9 and TP10 to GND. Play	Deck A: VR7 Deck B: VR8	Adjust so that frequency is 6 kHz at tape center.	
<2>	Tape speed (normal speed)	TCC-110 MTT-111 3 kHz	(B)	Open TP9 and TP10. Play	Deck A: VR9 Deck B: VR10	Adjust so that frequency is 3 kHz at tape center.	
<3>	Playback level	MTT-150 400 Hz (200nWb)	(B)	PLAY	Deck A: VR1 (L), VR2 (R) Deck B: VR3 (L), VR4 (R)	Adjust so that playback output is −6.0 dBs.	
		MTT-256 315 Hz (160n Wb)				Adjust so that playback output is −9.0 dBs.	
		MTT-256U, TCC-160 315 Hz (220nWb)				Adjust so that playback output is −5.0 dBs.	
<4>	Bias current	(A) 1 kHz, −30 dBs 10 kHz, −30 dBs	(B)	Adjust the recording level control VR1/VR2 so that recording monitor output is −29 dBs at 1 kHz, and record and play back 1 kHz and 10 kHz alternately.	Deck B: VR5 (L), VR6 (R)	Record 1 kHz and 10 kHz alternately, and adjust so that playback level is identical between them.	
<5>	Recording level	(A) 1 kHz, −10 dBs	(B)	Record and play back 1 kHz with the situation of above <4> kept as it is.	Deck B: VR11 (L) VR12 (R)	Adjust so that playback output is −9.0 dB.	
<6>	Bias oscillation frequency	Load a non-recorded tape on deck B.	Connect a frequency counter between TP6 and GND of deck B.	REC	Deck B: L9	Adjust so that the frequency counter reads 105 kHz.	(d)
<7>	Bias leak	Load a blank tape on deck A.	(B)	Load a metal tape on deck B, and dub it at high speed.	L3 (L) L4 (R)	Minimize the leak.	

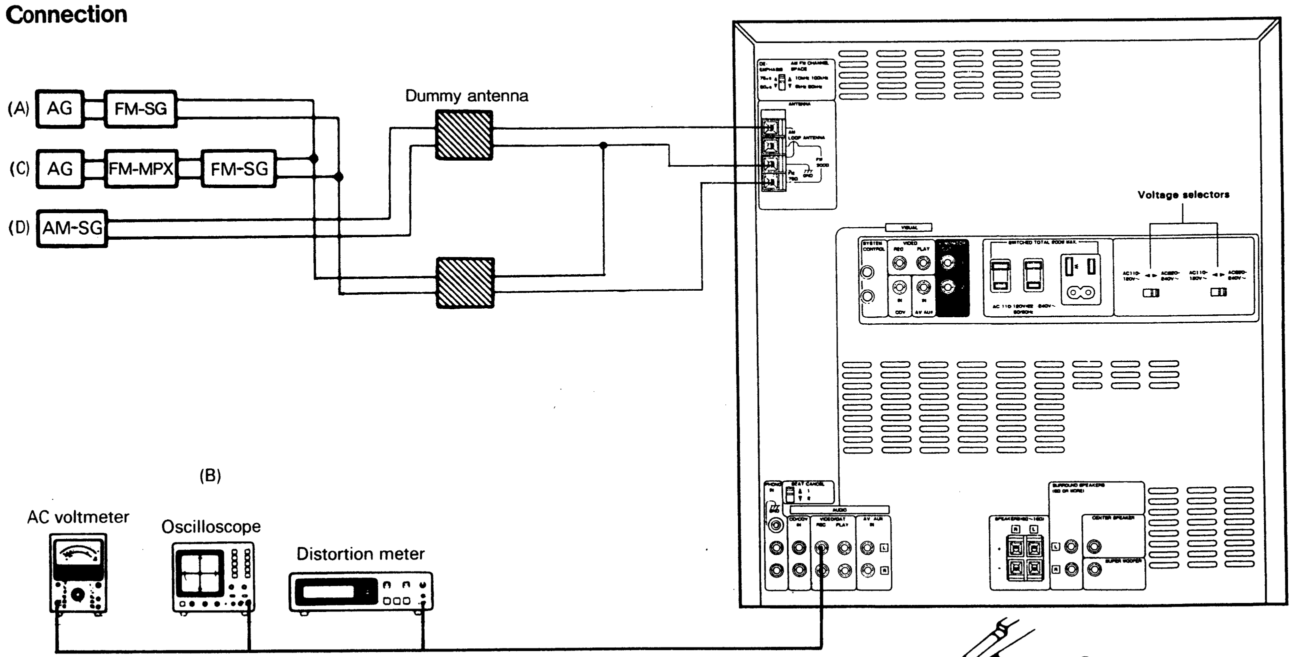
REGLAGES

Ajustement

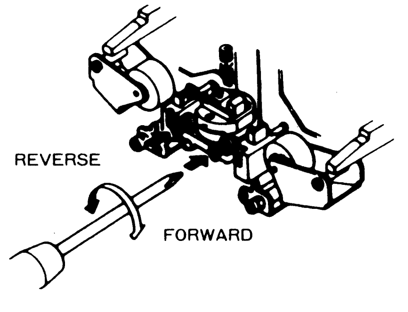
Postes d'ajustement de la section tuner

Ordre	Poste	Réglage d'entrée	Réglage de sortie	Réglage de tuner	Point d'ajustement	Méthode d'ajustement	Figure
A moins de spécification contraire, régler comme suit les commandes respectives: Section FM ... Sélecteur: FM, AUTO/MANUAL: AUTO, SLEEP: OFF Pour la fréquence SG à utiliser, choisir une fréquence vers le centre de la bague de syntonisation où aucune fréquence de station n'est localisée.							
1	Discriminateur (Le réglage de distorsion monaurale est aussi effectué.)	(A), 98,0 MHz, 1 kHz, ±75 kHz dév., 60 dBμ (entrée d'antenne)	Raccorder un voltmètre CC entre TP19 et TP20.	MONO 98,0 MHz	L19 (X28 –)	0V	(a)
2	VCO	(A), 98,0 MHz, 0 dév., 100 dBμ (entrée d'antenne)	Raccorder une résistance de 300 ohms pour TP21 et raccorder un compteur de fréquence via un voltmètre secteur.	98,0 MHz	VR15 (X28 –)	19,00 kHz	(b)
3	Taux de distorsion (stéréo)	(C), 98,0 MHz, 1 kHz±68,25 kHz dév. Sélecteur: G ou D, 60 dBμ (entrée d'antenne)	(B)	98,0 MHz	T1 (X86 –) (contrôlle)	Minimiser la distorsion.	
4	Réglage d'accord	(A), 98,0 MHz, 0 dév., 18 dBμ (entrée d'antenne)	(B)	98,0 MHz	VR14 (X28 –)	Ajuster à la position où "TUNED" de (X14) commence à d'allumor.	

Connection


(A)
AG
FM-SG
(C)
AG
FM-MPX
FM-SG
(D)
AM-SG
Dummy antenna
Voltage selectors
(B)
AC voltmeter
Oscilloscope
Distortion meter

Azimuth adjustment (d)


REVERSE
FORWARD

REGLAGES

Postes d'ajustement de la seciton magnétophone

Ordre	Poste	Réglage d'entrée	Réglage de sortie	Réglage de tuner	Point d'ajustement	Méthode d'ajustement	Figure
A moins de spécification contraire, régler comme suit les commandes respectives: TAPE: NORMAL, DOLBY: OFF, INPUT: LINE, BEAT CANSEL: S1 → 1 0 dBs = 0,775V							
I. Section mécanisme de cassette (Réglage de tête d'enregistrement/lecture)							
[1]	Démagnétisation et nettoyage	—	—	Alimentation: Coupé, Démagnétisation, Nettoyage, Lecture	Tête d'enregistrement, Tête d'effacement, Cabestan, Galet presseur (Platines A et B)	Démagnétiser la tête d'enreg/lect. par démagnétiseur. Nettoyer tête d'enreg/lect., tête d'effac., cabestan, galet presseur par écouvillon de coton trempé dans de l'alcool.	
[2]	Azimut de tête d'enreg/lect.	TCC-153 MTT-114 10 kHz, −10 dB	(B)	PLAY	Vis de réglage d'azimut (Platines A et B) (AV, AR)	Maximiser la sortie et ajuster de sorte que la courbe Lissajous de l'oscilloscope approche d'une ligne inclinée à 45 degrés.	(c)
II. Réglage de carte imprimée (X28-2080)							
<1>	Vitesse de bande (double)	TCC-110 MTT-111 3 kHz	(B)	Raccorder TP9 et TP10 à la masse. Lecture	Deck A: VR7 Deck B: VR8	Ajuster de sorte que la fréquence soit de 6 kHz au centre de la bande.	
<2>	Vitesse de bande (normale)	TCC-110 MTT-111 3 kHz	(B)	Ouvrir TP9 et TP10. Lecture	Deck A: VR9 Deck B: VR10	Ajuster de sorte que la fréquence soit de 3 kHz au centre de la bande.	
<3>	Niveau de lecture	MTT-150 400 Hz (200nWb)	(B)	PLAY	Deck A: VR1 (L), VR2 (R) Deck B: VR3 (L), VR4 (R)	Ajuster de sorte que la sortie de lecture soit −6,0 dBs.	
		MTT-256 315 Hz (160n Wb)				Ajuster de sorte que la sortie de lecture soit −9,0 dBs.	
		MTT-256U, TCC-160 315 Hz (220nWb)				Ajuster de sorte que la sortie de lecture soit −5,0 dBs.	
<4>	Courant de polarisation	(A) 1 kHz, −30 dBs 10 kHz, −30 dBs	(B)	Agir sur la commande de niveau d'enregistrement VR1/VR2 de sorte que la sortie de surveillance d'enregistrement soit −29 dBs à 1 kHz, puis enregistrer et reproduire alternativement à 1 kHz et 10 kHz.	Deck B: VR5 (L), VR6 (R)	Enregistrer 1 kHz et 10 kHz alternativement et ajuster de sorte que le niveau de lecture soit identique entre les deux.	
<5>	Niveau d'enregistrement	(A) 1 kHz, −10 dBs	(B)	Enregistrer et reproduire 1 kHz, la situation de <4> ci-dessus restant telle quelle.	Deck B: VR11 (L) VR12 (R)	Ajuster de sorte que la sortie de lecture soit −9,0 dB.	
<6>	Fréquence d'oscillation de polarisation	Placer une bande vierge dans la Platine B.	Raccorder un compteur de fréquence entre TP6 et la masse de la Platine B.	REC	Deck B: L9	Ajuster de sorte que le compteur de fréquence indique 105 kHz.	(d)
<7>	Fuite de polarisation	Placer une bande vierge dans la Platine A.	(B)	Placer une bande métal dans la Platine B et la copier à grande vitesse.	L3 (L) L4 (R)	Minimiser la fuite.	

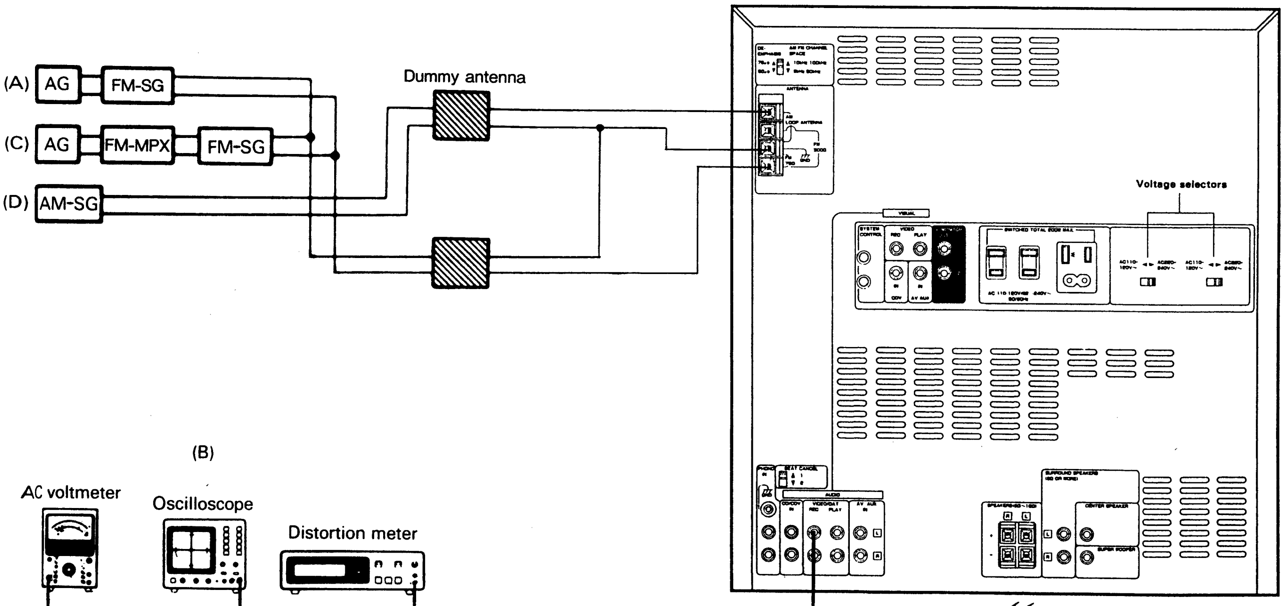
ABGLEICH

Einstellung

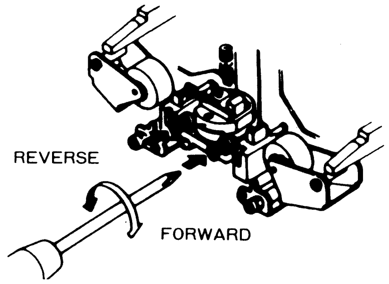
Einstellpunkte des Empfangsteils

Reihenfolge	Gegenstand	Eingangseinstellung	Ausgangseinstellung	Tuner-Einstellung	Einstellpunkt	Einstellmethode	Abbildung
Wenn nicht anders angegeben, die einzelnen Schalter wie folgt einstellen: UKW-Empfangsteil ... Wähler: FM, AUTO/MANUAL: AUTO, SLEEP: OFF Für die zu verwendende SG-Frequenz eine Frequenz etwa in der Mitte der Abstimmskala wählen, in deren Nähe sich keine Sender befinden.							
1	Diskriminator (Monoverzerrungs-Einstellung erfolgt gleichzeitig.)	(A), 98,0 MHz, 1 kHz, ±75 kHz Hub, 60 dBμ (Antenneneingang)	Ein Gleichstrom-Voltmeter zwischen TP19 und TP20 anschließen.	MONO 98,0 MHz	L19 (X28 -)	0V	(a)
2	VCO	(A), 98,0 MHz, 0 Hub, 100 dBμ (Antenneneingang)	Einen 300-Ohm-Widerstand an TP21 anschließen und einen Frequenzzähler über ein Wechselstrom-Voltmeter anschließen.	98,0 MHz	VR15 (X28 -)	19,00 kHz	(b)
3	Verzerrungsrate (Stereo)	(C), 98,0 MHz, 1 kHz ±68,25 kHz Hub, Wähler: L oder R, 60 dBμ (Antenneneingang)	(B)	98,0 MHz	T1 (X86 -) (Eingangskreis)	Die Verzerrung minimieren.	
4	Abstimmpegel	(A), 98,0 MHz, 0 Hub, 18 dBμ (Antenneneingang)	(B)	98,0 MHz	VR14 (X28 -)	Auf eine Position einstellen, an der "TUNED" von FLI (X14) zu leuchten anfängt.	

Connection



Azimuth adjustment (d)

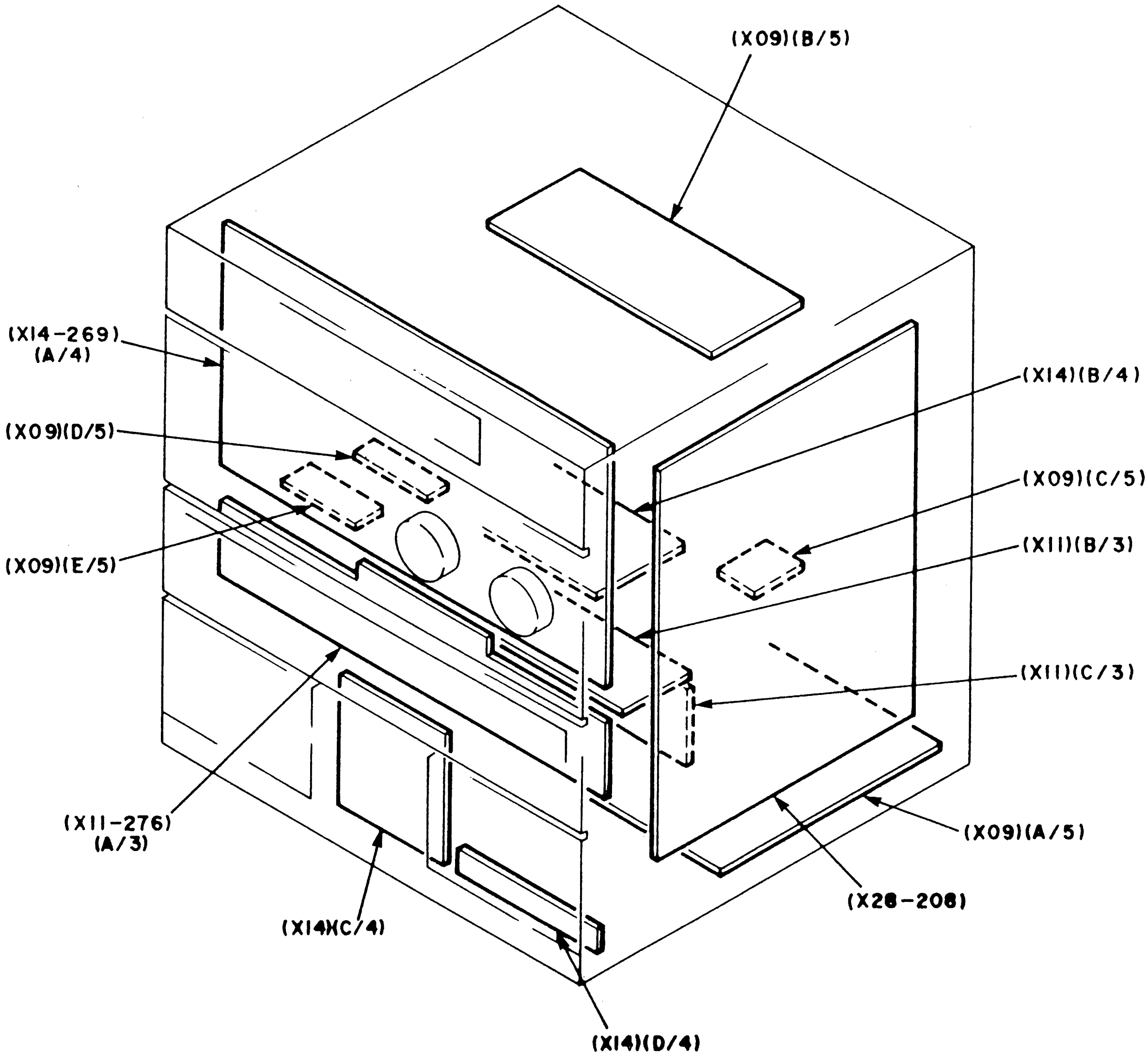


ABGLEICH

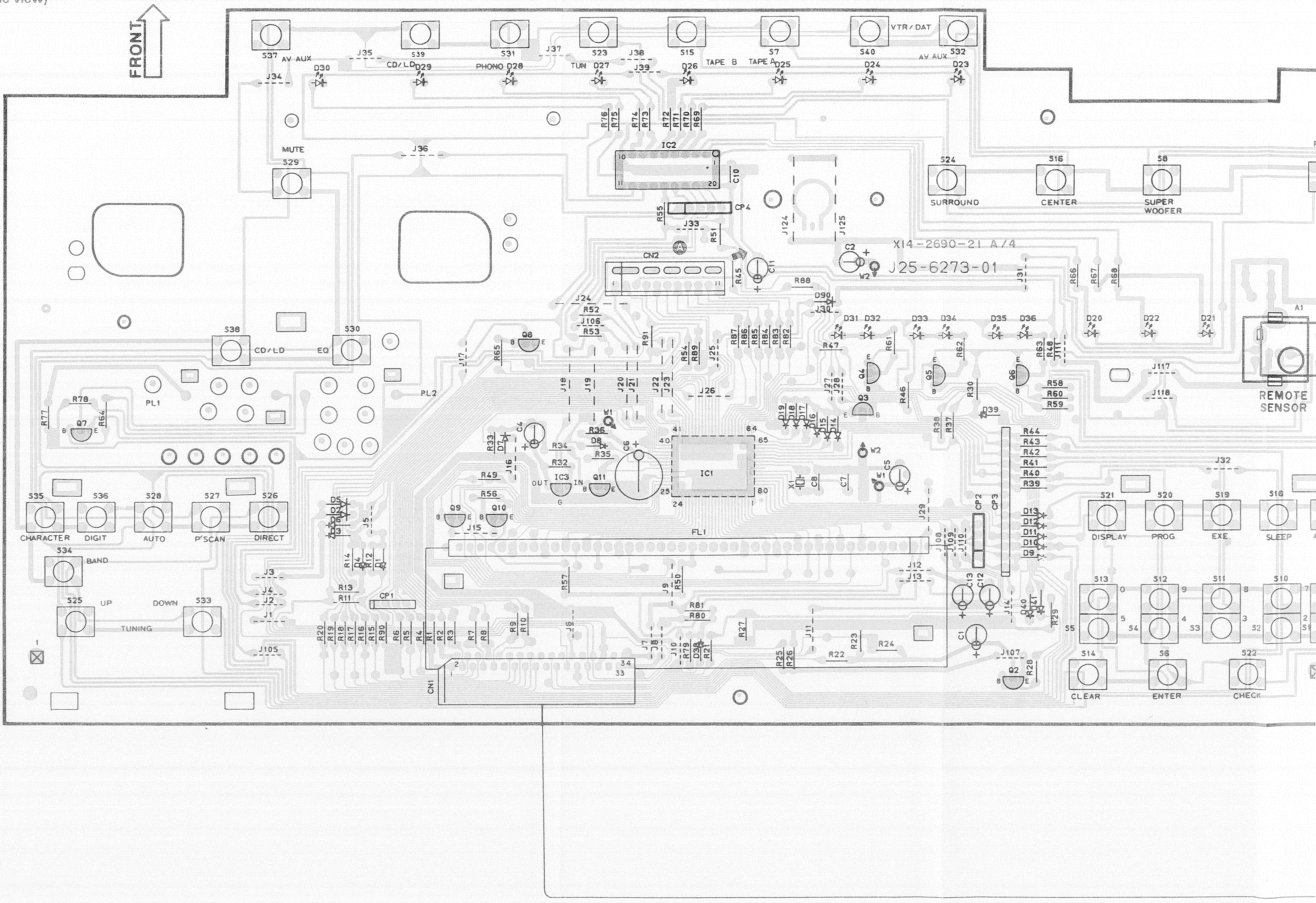
Einstellpunkte des Kassettendeckteils

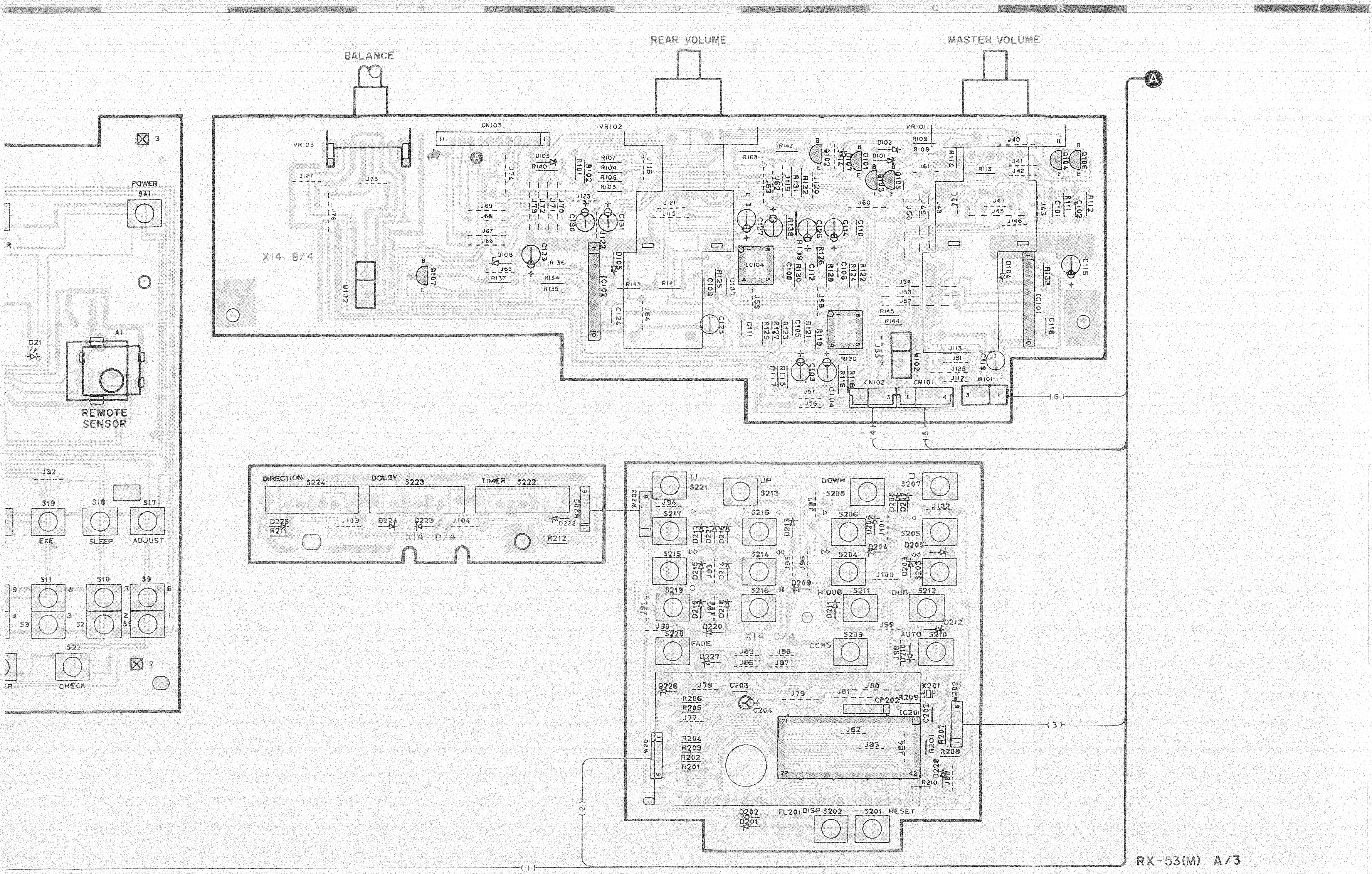
Reihenfolge	Gegenstand	Eingangseinstellung	Ausgangseinstellung	Tuner-Einstellung	Einstellpunkt	Einstellmethode	Abbildung
Wenn nicht anders angegeben, die einzelnen Schalter wie folgt einstellen: TAPE: NORMAL, DOLBY: OFF, INPUT: LINE, BEAT CANSEL: S1 → 1 I. Kassettenmechanismusteil (Einstellung des Aufnahme/Wiedergabe-Tonkopfes)							0 dBs = 0,775V
[1]	Entmagnetisierung und Reiningung	—	—	Spannungsversorgung: OFF, Entmagnetisierung, Reinigung, Wiedergabe	Aufnahmekopf, Löschkopf, Tonwelle, Andruckrolle (Deck A und B)	Aufnahme/Wiedergabe-Kopf mit Tonkopf-Entmagnetisierer entmagnetisieren. Aufnahme/Wiedergabe-Kopf, Löschkopf, Tonwelle, Andruckrolle mit einem mit Alkohol befeuchteten Wattestäbchen reinigen.	
[2]	Aufnahme/ Wiedergabe-Kopf-Azimuth	TCC-153 MTT-114 10 kHz, −10 dB	(B)	PLAY	Azimuth-Einstellschraube (Deck A und B) (FMW, REV)	Den Ausgang maximieren und so einstellen, daß die Lissajous-Figur auf dem Oszilloskop sich einer um 45° geneigten Linie annähert.	(c)
II. Platinen-Einstellung (X28-2080)							
<1>	Bandgeschwindigkeit (doppelte Geschwindigkeit)	TCC-110 MTT-111 3 kHz	(B)	TP9 und TP10 mit GND verbinden. Wiedergabe	Deck A: VR7 Deck B: VR8	So einstellen, daß die Frequenz in der Bandmitte 6 kHz beträgt.	
<2>	Bandgeschwindigkeit (normale Geschwindigkeit)	TCC-110 MTT-111 3 kHz	(B)	TP9 und TP10 öffnen. Wiedergabe	Deck A: VR9 Deck B: VR10	So einstellen, daß die Frequenz in der Bandmitte 3 kHz beträgt.	
<3>	Wiedergabepegel	MTT-150 400 Hz (200nWb)	(B)	- PLAY	Deck A: VR1 (L), VR2 (R) Deck B: VR3 (L), VR4 (R)	So einstellen, daß der Wiedergabeausgang −6,0 dBs beträgt.	
		MTT-256 315 Hz (160n Wb)				So einstellen, daß der Wiedergabe-Ausgang −9,0 dBs beträgt.	
		MTT-256U, TCC-160 315 Hz (220nWb)				So einstellen, daß der Wiedergabe-Ausgang −5,0 dBs beträgt.	
<4>	Vormagnetisierungsstrom	(A) 1 kHz, −30 dBs 10 kHz, −30 dBs	(B)	Den VR1/VR2 für Aufnahmepegelregelung so einstellen, daß der Aufnahme-Monitorausgang −29Bs bei 1kHz beträgt, und abwechselnd 1kHz und 10kHz aufnehmen und wiedergeben.	Deck B: VR5 (L), VR6 (R)	Abwechselnd 1kHz und 10 kHz aufnehmen und so einstellen, daß der Wiedergabepegel bei beiden gleich ist.	
<5>	Aufnahmepegel	(A) 1 kHz, −10 dBs	(B)	Unter Beibehaltung der Situation des obigen Punktes<4>1kHz aufnehmen und wiedergeben.	Deck B: VR11 (L) VR12 (R)	So einstellen, daß der Wiedergabe-Ausgang −9,0 dBs beträgt.	
<6>	Vormagnetisierungs-Oszillationsfrequenz	Eine unbespielte Kassette in Deck B einsetzen.	Einen Frequenzzähler zwischen TP6 und GND von Deck B anschließen.	REC	Deck B: L9	So einstellen, daß der Frequenzzähler 105kHz anzeigt.	(d)
<7>	Vormagnetisierungsstreuung	Eine leere Kassette in Deck A einsetzen.	(B)	Eine Metallband-Kassette in Deck B einsetzen und mit hoher Geschwindigkeit überspielen.	L3 (L) L4 (R)	Die Streuung minimieren.	

PC BOARD LAYOUT


(X09)(B/5)
(X14-269)
(A/4)
(X14)(B/4)
(X09)(D/5)
(X09)(C/5)
(X11)(B/3)
(X09)(E/5)
(X11)(C/3)
(X09)(A/5)
(X11-276)
(A/3)
(X28-208)
(X14)(C/4)
(X14)(D/4)

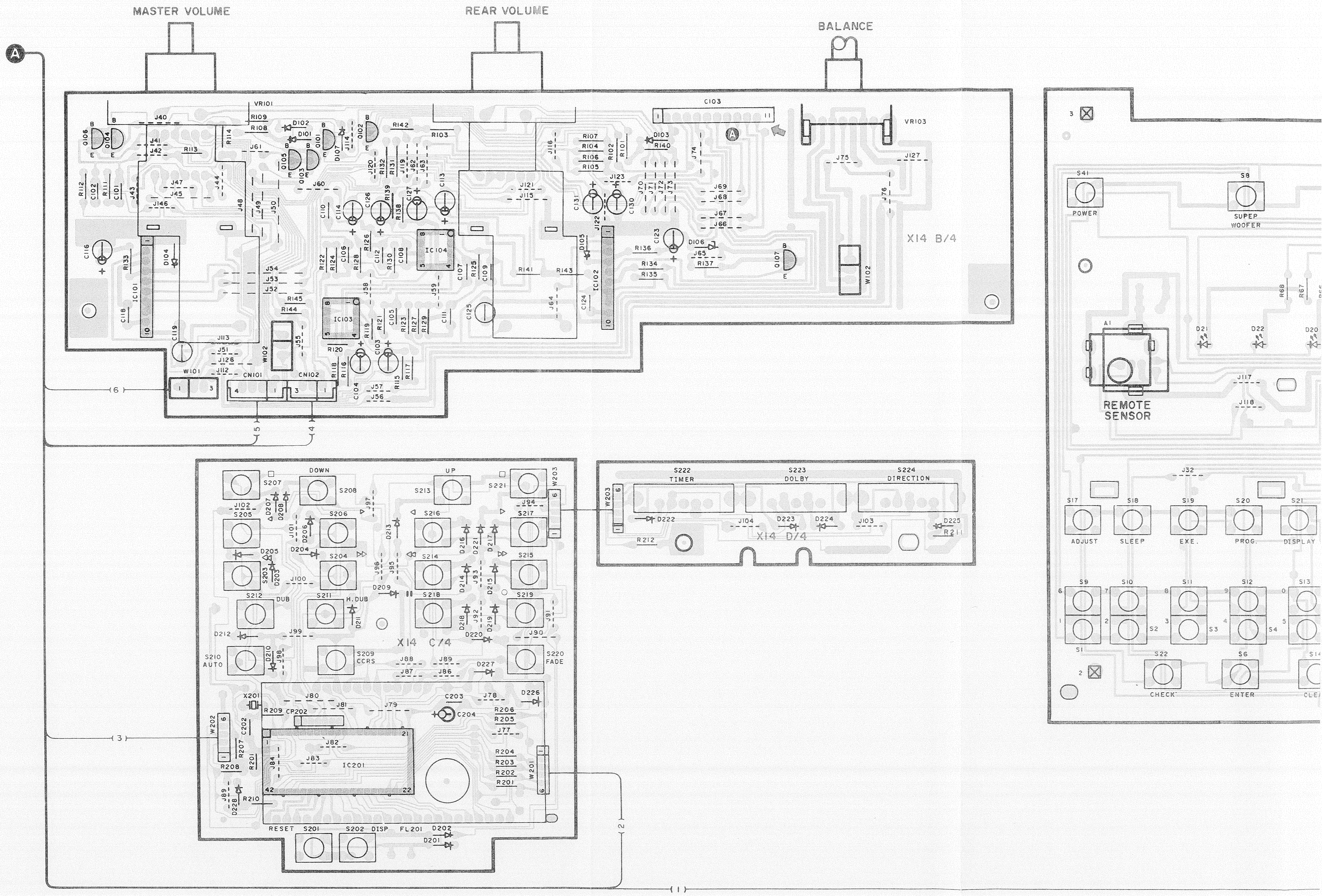
PC BOARD
(Component side view)

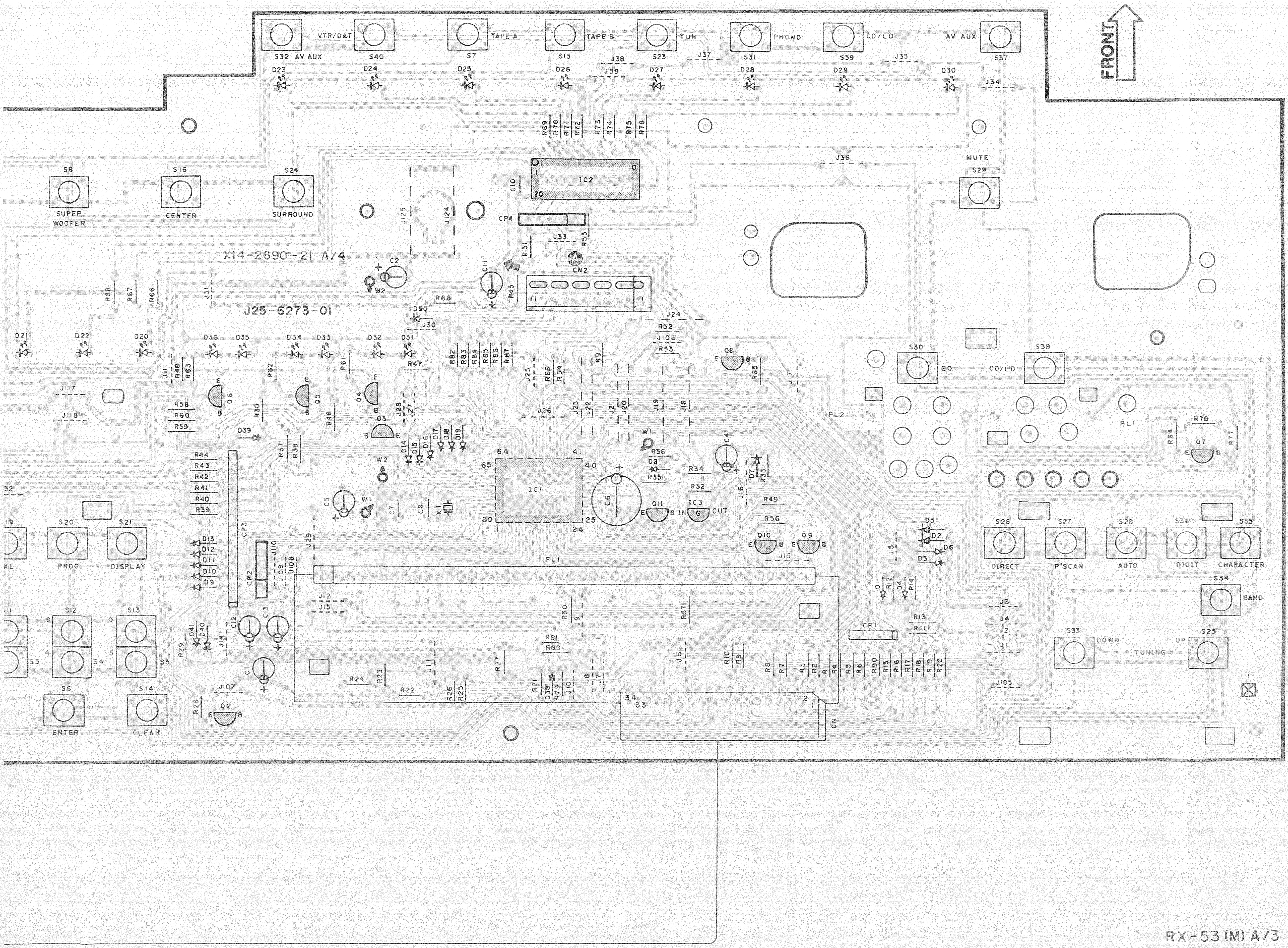

FRONT
S37 AV AUX
J35
S39 CD/LD
S31 PHONO
J37
S23 TUN
J38
J39
S15 TAPE B
S7 TAPE A
S40 VTR/DAT
S32 AV AUX
D30 D29 D28 D27 D26 D25 D24 D23
J34
R76 R75 R74 R73 R72 R71 R70 R69
IC2
C10
CP4
R55
J33
R51
J124
J125
MUTE
S29
J36
S24 SURROUND
S16 CENTER
S8 SUPER WOOFER
X14-2690-21 A/4
J25-6273-01
C2
W2
C11
CN2
R45
R88
D90
J30
J31
R66 R67 R68
J24
R52
J106
R53
S38 CD/LD
S30 EQ
PL1
PL2
Q8
R65
J17
R91
J18 J19 J20 J21 J22 J23
R54 R89 J25
R87 R86 R85 R84 R83 R82
D31 D32 D33 D34 D35 D36
D20 D22 D21
R47
R61
R62
R63 R48 J111
J117
J118
A1
REMOTE SENSOR
Q4 Q5 Q6
Q3
R46
R30
R58 R60 R59
R78
R77
Q7
R64
J26
D19 D18 D17 D16 D15 D14
D39
R38 R37
R44 R43 R42 R41 R40 R39
R33 D7
C4
R36 D8
R34
R35
C6
R32
J16
R49
IC3 OUT IN
Q11
R56
IC1
41 64 40 65 25 80 24 1
X1 C8 C7
C5
J32
S35 CHARACTER
S36 DIGIT
S28 AUTO
S27 P'SCAN
S26 DIRECT
D5 D2 D6 D3
J5
Q9 Q10
J15
FL1
J29
CP2 CP3
J108 J109 J110
D13 D12 D11 D10 D9
S21 DISPLAY
S20 PROG
S19 EXE
S18 SLEEP
S34 BAND
R14 D4 R12 D1
J3
J4
J2
J1
R13
R11
CP1
S25 UP
S33 DOWN
TUNING
R57
J9 R50
R81
R80
J12
J13
C13 C12
J14
D40 D41
R29
S13 0
S12 9
S11 8
S10 7
S5 5
S4 4
S3 3
S2 2
C1
J105
R20 R19 R18 R17 R16 R15 R90 R6 R5 R4 R1 R2 R3 R7 R8 R9 R10
J6
J7 J8
J10 R79 D38 R21
R27
J11
R23
R24
R25 R26
R22
J107
Q2
R28
S14 CLEAR
S6 ENTER
S22 CHECK
CN1
2 34 33
1


BALANCE
REAR VOLUME
MASTER VOLUME
VR103
CN103
VR102
VR101
X14 B/4
IC102
IC104
IC101
CN102
CN101
W101
W102
POWER
S41
A1
D21
REMOTE SENSOR
J32
S19
S18
S17
EXE
SLEEP
ADJUST
S11
S10
S9
S3
S2
S22
CHECK
DIRECTION
S224
DOLBY
S223
TIMER
S222
W203
X14 D/4
R212
S221
UP
S213
DOWN
S208
S207
S217
S216
S206
S205
S215
S214
S204
S203
S219
S218
H'DUB
S211
DUB
S212
S220
FADE
X14 C/4
CCRS
S209
AUTO
S210
W201
W202
IC201
FL201
DISP
S202
S201
RESET
A
1
2
3
4
5
6

RX-53(M) A/3

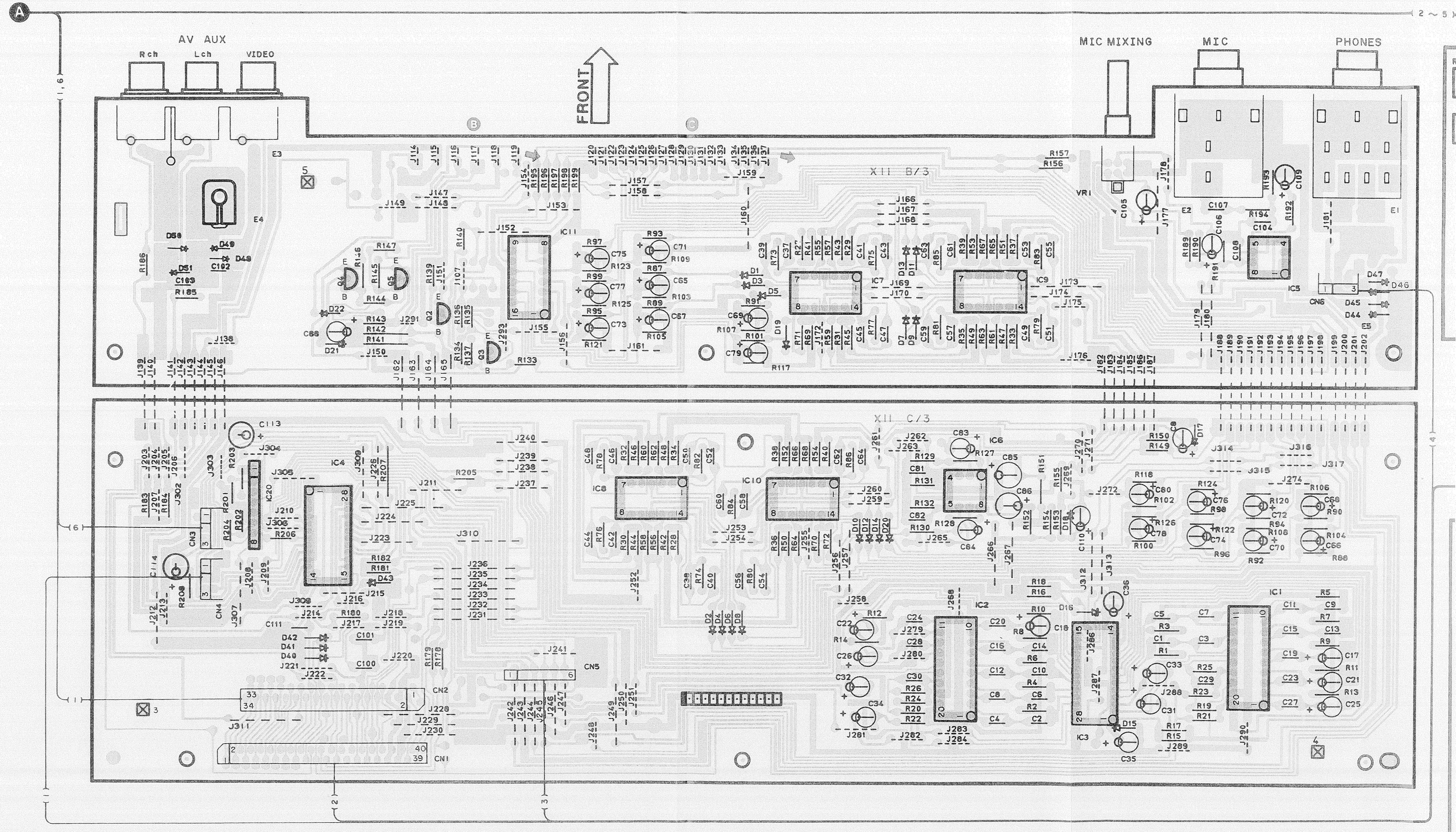
PC BOARD
(Foil side view)

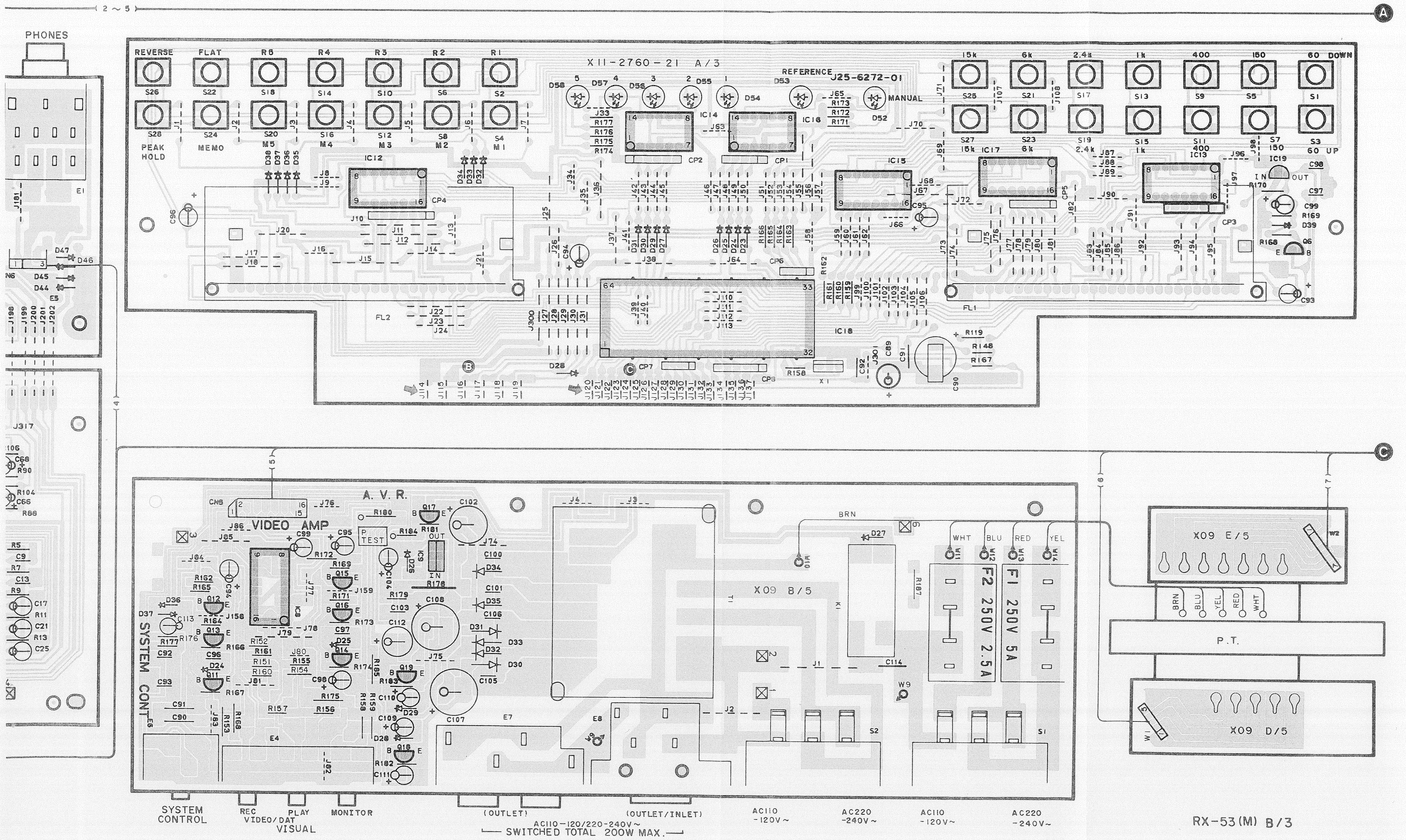

A
MASTER VOLUME
REAR VOLUME
BALANCE
VR101
VR103
C103
X14 B/4
IC101
IC102
IC103
IC104
Q101
Q102
Q103
Q104
Q105
Q106
Q107
W101
W102
CN101
CN102
6
5
4
3
2
1
X14 C/4
X14 D/4
S201 RESET
S202 DISP
FL201
D201
D202
S203
S204
S205
S206
S207
S208 DOWN
S209 CCRS
S210 AUTO
S211 H.DUB
S212 DUB
S213 UP
S214
S215
S216
S217
S218
S219
S220 FADE
S221
S222 TIMER
S223 DOLBY
S224 DIRECTION
W201
W202
W203
IC201
X201
CP202
C203
C204
S41 POWER
S8 SUPER WOOFER
A1 REMOTE SENSOR
D21
D22
D20
S17 ADJUST
S18 SLEEP
S19 EXE.
S20 PROG.
S21 DISPLAY
S9
S10
S11
S12
S13
S1
S2
S3
S4
S22 CHECK
S6 ENTER
S14 CLE


FRONT
S32 AV AUX
VTR/DAT
S40
S7
TAPE A
S15
TAPE B
S23
TUN
S31
PHONO
S39
CD/LD
AV AUX
S37
MUTE
S29
S8
SUPER WOOFER
S16
CENTER
S24
SURROUND
X14-2690-21 A/4
J25-6273-01
IC2
CP4
CN2
IC1
IC3
IN
OUT
FL1
CN1
CP1
CP2
CP3
S30
EQ
S38
CD/LD
PL1
PL2
S20
PROG.
S21
DISPLAY
S12
S13
S6
ENTER
S14
CLEAR
S26
DIRECT
S27
P'SCAN
S28
AUTO
S36
DIGIT
S35
CHARACTER
S34
BAND
S33
DOWN
TUNING
UP
S25

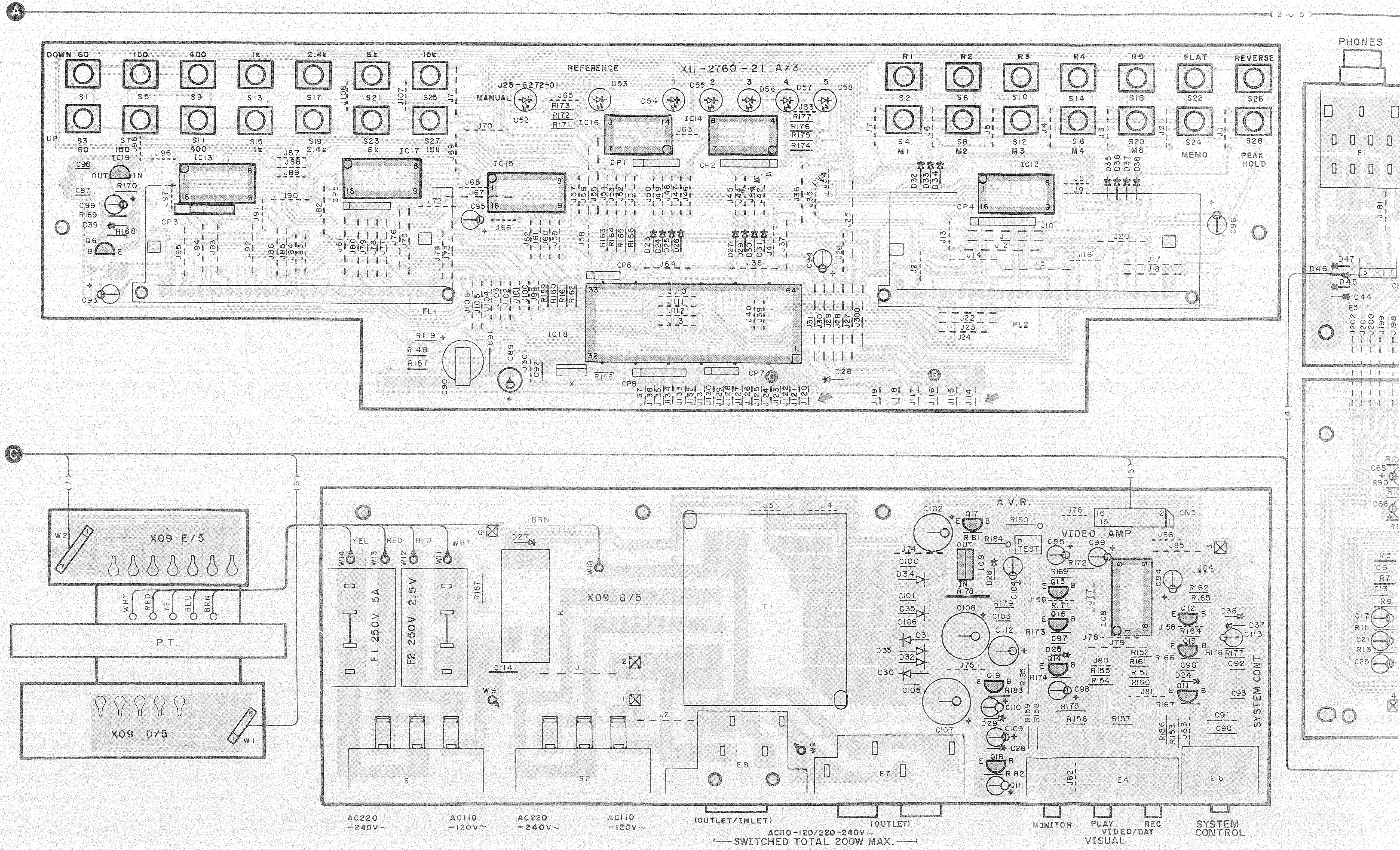
RX-53 (M) A/3

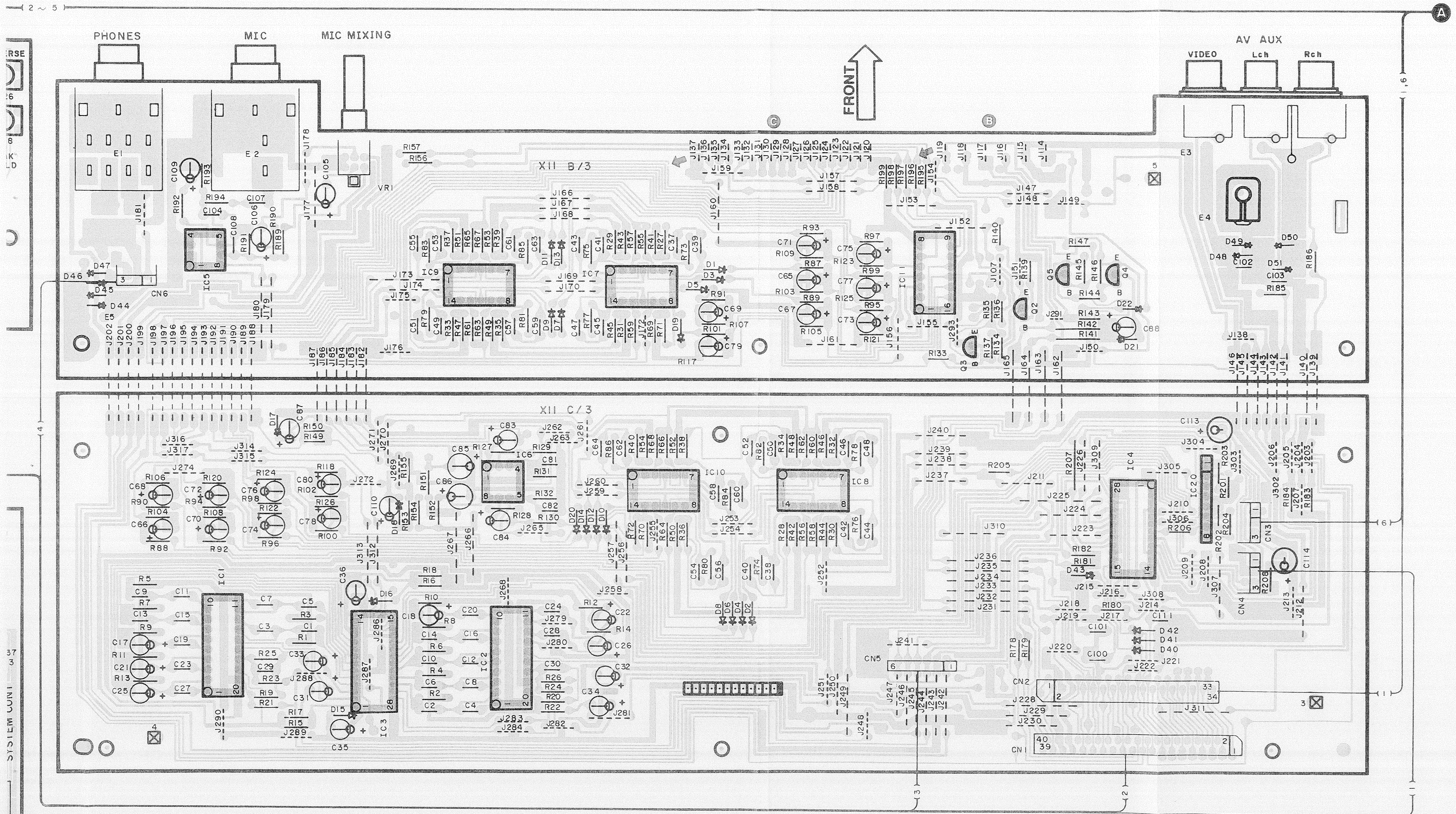
PC BOARD (Component side view)


A
AV AUX
Rch
Lch
VIDEO
FRONT
MIC MIXING
MIC
PHONES
X11 B/3
X11 C/3
VR1
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC20
CN1
CN2
CN3
CN4
CN5
CN6
E1
E2
E3
E4
E5
2 ~ 5


2 ~ 5
A
PHONES
E1
REVERSE
FLAT
R5
R4
R3
R2
R1
S26
S22
S18
S14
S10
S6
S2
S28
S24
S20
S16
S12
S8
S4
PEAK HOLD
MEMO
M5
M4
M3
M2
M1
X11-2760-21 A/3
REFERENCE
J25-6272-01
MANUAL
IC12
IC14
IC16
IC15
IC17
IC13
IC19
IC18
CP1
CP2
CP3
CP4
CP5
CP6
CP7
CP8
FL1
FL2
15k
6k
2.4k
1k
400
150
60 DOWN
S25
S21
S17
S13
S9
S5
S1
S27
S23
S19
S15
S11
S7
S3
60 UP
IN
OUT
X1
J317
C
A. V. R.
VIDEO AMP
P. TEST
IN
OUT
SYSTEM CONT
E4
E6
E7
E8
BRN
WHT
BLU
RED
YEL
X09 B/5
T1
K1
F2 250V 2.5A
F1 250V 5A
S2
S1
X09 E/5
X09 D/5
P.T.
SYSTEM CONTROL
REC
PLAY
VIDEO/DAT
VISUAL
MONITOR
(OUTLET)
AC110-120/220-240V~
SWITCHED TOTAL 200W MAX.
(OUTLET/INLET)
AC110 -120V~
AC220 -240V~
AC110 -120V~
AC220 -240V~
RX-53(M) B/3

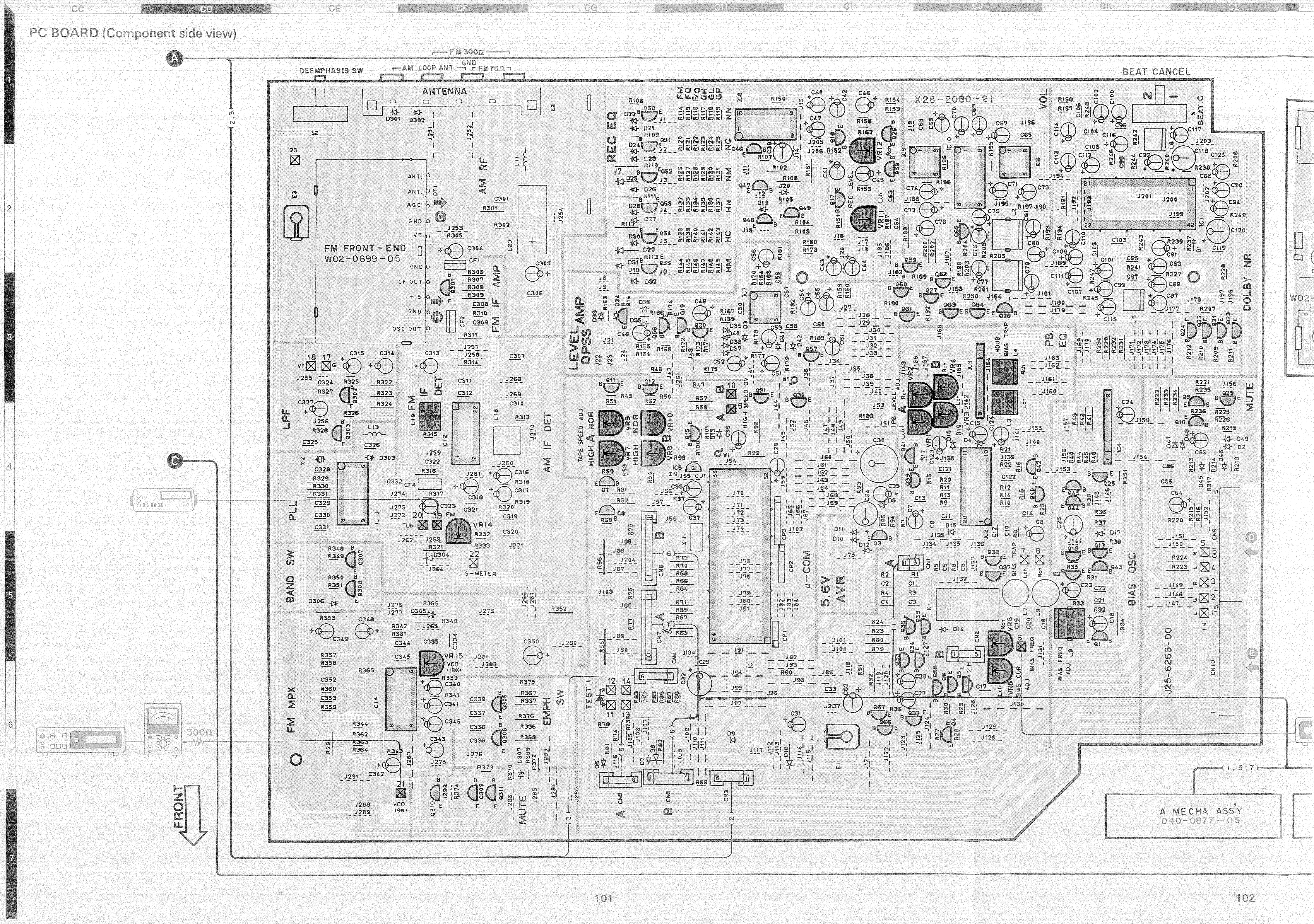
PC BOARD (Foil side view)

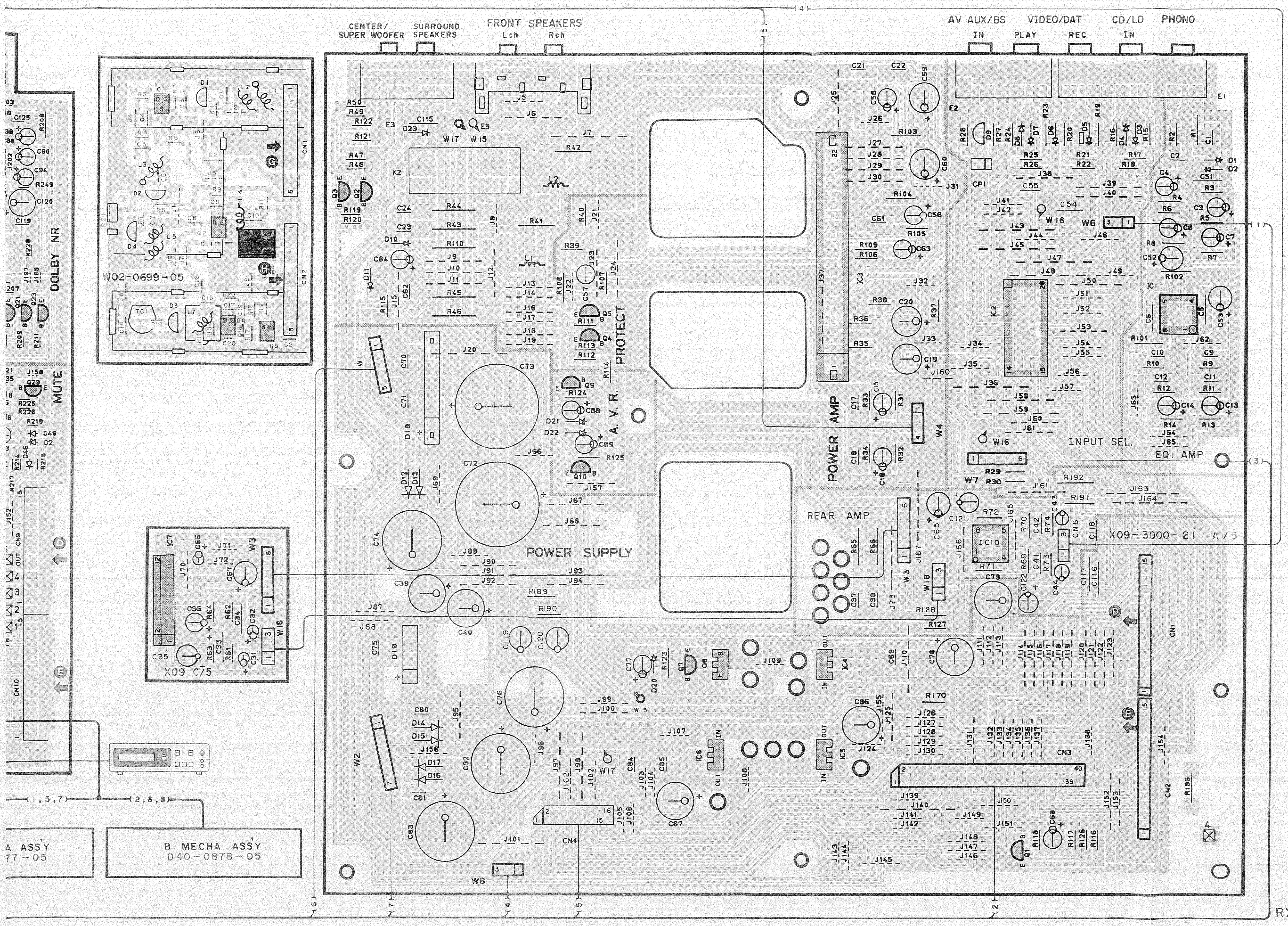

A
2 ~ 5
PHONES
DOWN 60
150
400
1k
2.4k
6k
15k
UP
REFERENCE
X11-2760-21 A/3
J25-6272-01
MANUAL
R1
R2
R3
R4
R5
FLAT
REVERSE
M1
M2
M3
M4
M5
MEMO
PEAK HOLD
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
CP1
CP2
CP3
CP4
CP5
CP6
CP7
CP8
FL1
FL2
X1
C
X09 E/5
X09 D/5
X09 B/5
P.T.
W1
W2
WHT
RED
YEL
BLU
BRN
F1 250V 5A
F2 250V 2.5V
K1
T1
A.V.R.
VIDEO AMP
P. TEST
CN5
SYSTEM CONT
S1
S2
E4
E6
E7
E8
AC220 -240V~
AC110 -120V~
AC220 -240V~
AC110 -120V~
(OUTLET/INLET)
(OUTLET)
AC110-120/220-240V~
SWITCHED TOTAL 200W MAX.
MONITOR
PLAY
REC
VIDEO/DAT
VISUAL
SYSTEM CONTROL


2 ~ 5
A
PHONES
MIC
MIC MIXING
FRONT
AV AUX
VIDEO
Lch
Rch
E1
E2
E3
E4
E5
VR1
XII B/3
XII C/3
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC20
CN1
CN2
CN3
CN4
CN5
CN6
Q2
Q3
Q4
Q5
1, 6
6
1
2
3
4
5
SYSTEM CONT

RX-53(M) B/3

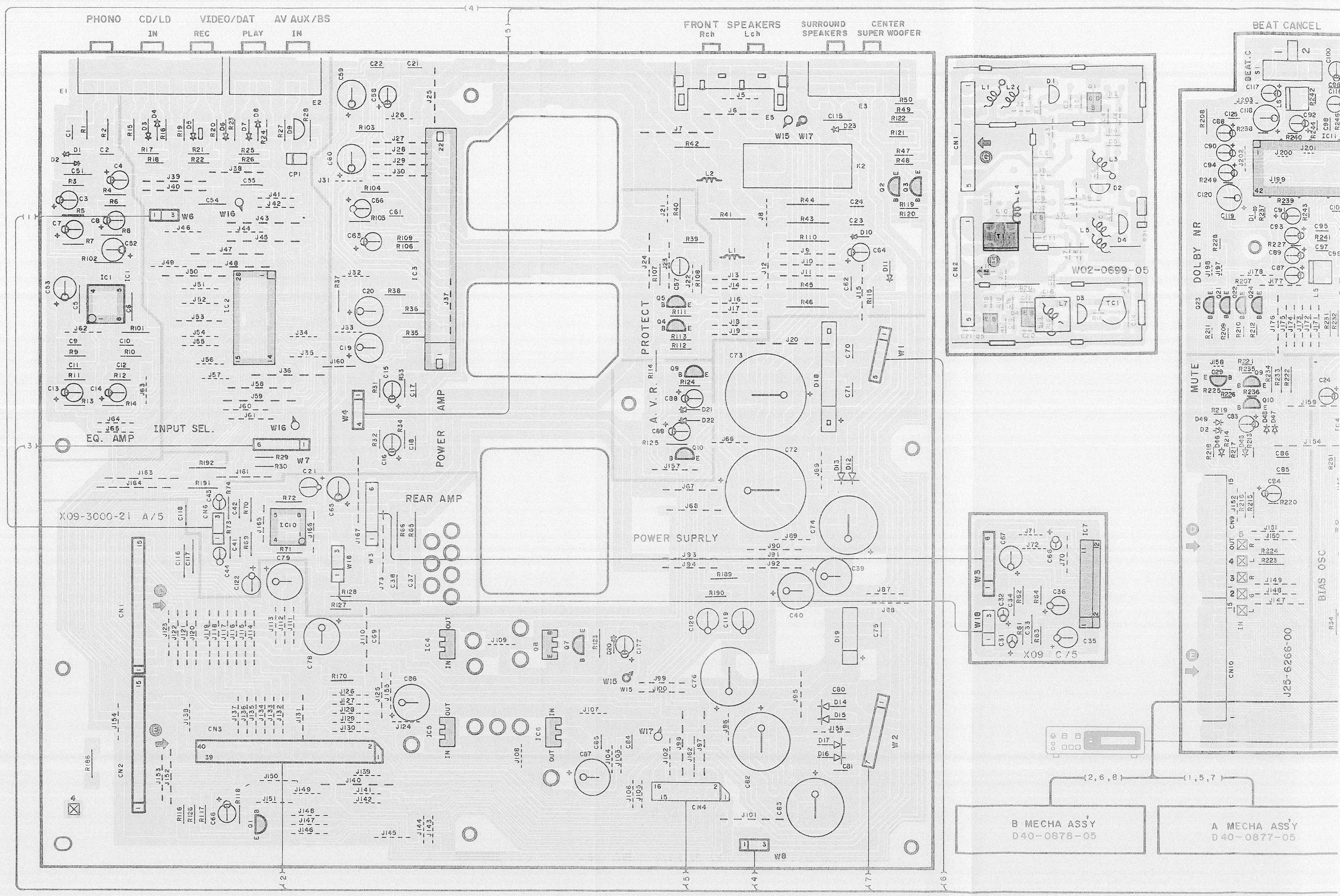
PC BOARD (Component side view)

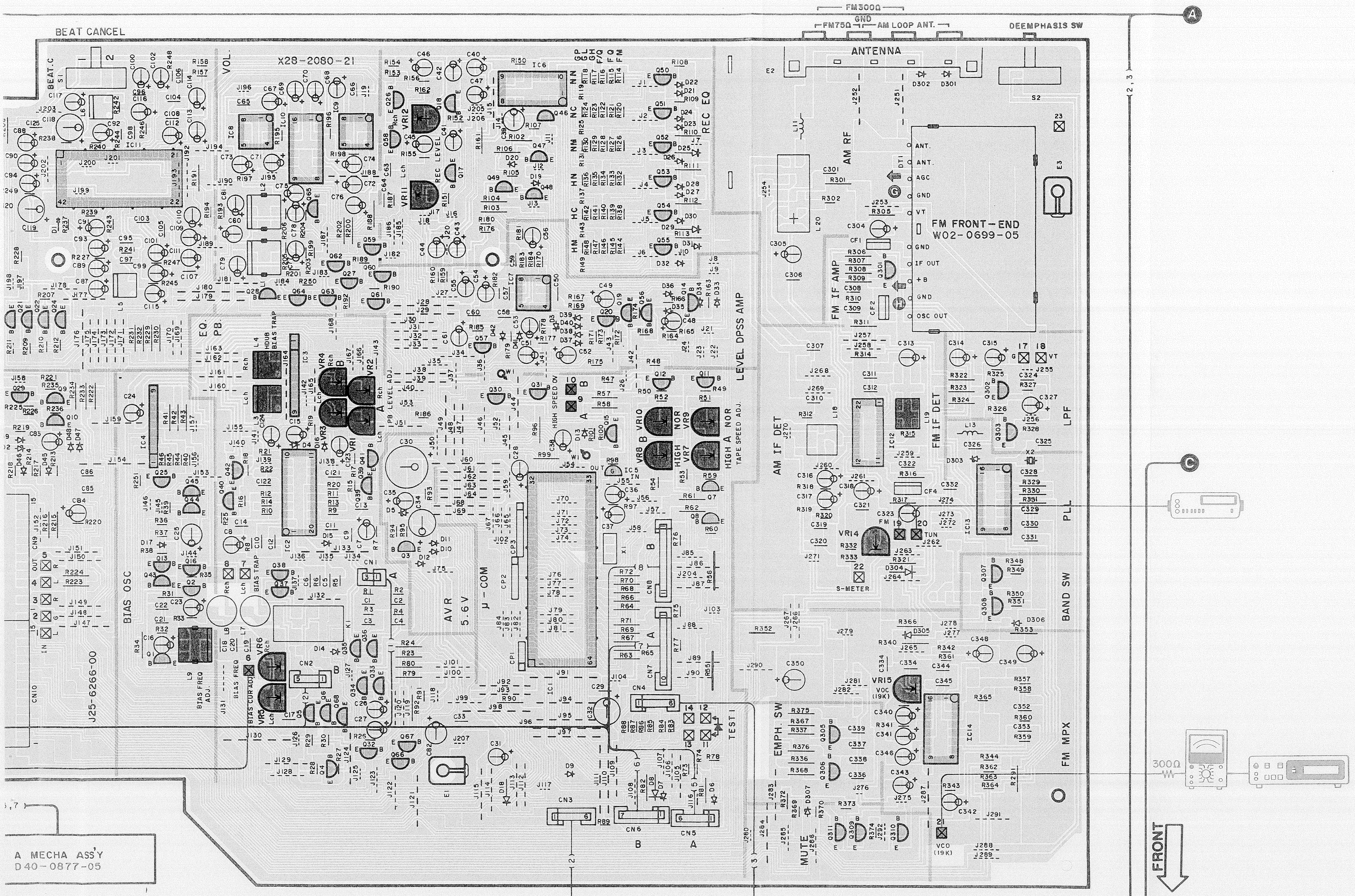

CC
CD
CE
CF
CG
CH
CI
CJ
CK
CL
1
2
3
4
5
6
7
A
C
D
E
FM 300Ω
DEEMPHASIS SW
AM LOOP ANT.
GND
FM75Ω
ANTENNA
BEAT CANCEL
X28-2080-21
FM FRONT-END
W02-0699-05
ANT.
AGC
VT
IF OUT
OSC OUT
AM RF
FM IF AMP
FM IF DET
AM IF DET
REC EQ
LEVEL AMP
DPSS
TAPE SPEED ADJ
HIGH A NOR
HIGH B NOR
VR7
VR8
VR9
VR10
VR11
VR12
VR14
VR15
LPF
PLL
BAND SW
FM MPX
VCO (19K)
S-METER
TUN
EMPH.
SW
MUTE
TEST
μ-COM
5.6V AVR
PB. EQ
BIAS OSC
BIAS FREQ ADJ
BIAS CUR ADJ
BIAS TRAP
DOLBY NR
VOL
MUTE
J25-6266-00
A MECHA ASS'Y
D40-0877-05
FRONT
300Ω
W02-


CENTER/ SUPER WOOFER
SURROUND SPEAKERS
FRONT SPEAKERS
Lch
Rch
AV AUX/BS IN
VIDEO/DAT PLAY
REC
CD/LD IN
PHONO
DOLBY NR
MUTE
W02-0699-05
X09 C/5
PROTECT
A. V. R.
POWER SUPPLY
POWER AMP
REAR AMP
INPUT SEL.
EQ. AMP
X09-3000-21 A/5
A ASS'Y
77-05
B MECHA ASS'Y
D40-0878-05
CN1
CN2
CN3
CN4
CN6
CN9
CN10
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC10
W1
W2
W3
W4
W6
W7
W8
W16
W17
W18
(1,5,7)
(2,6,8)

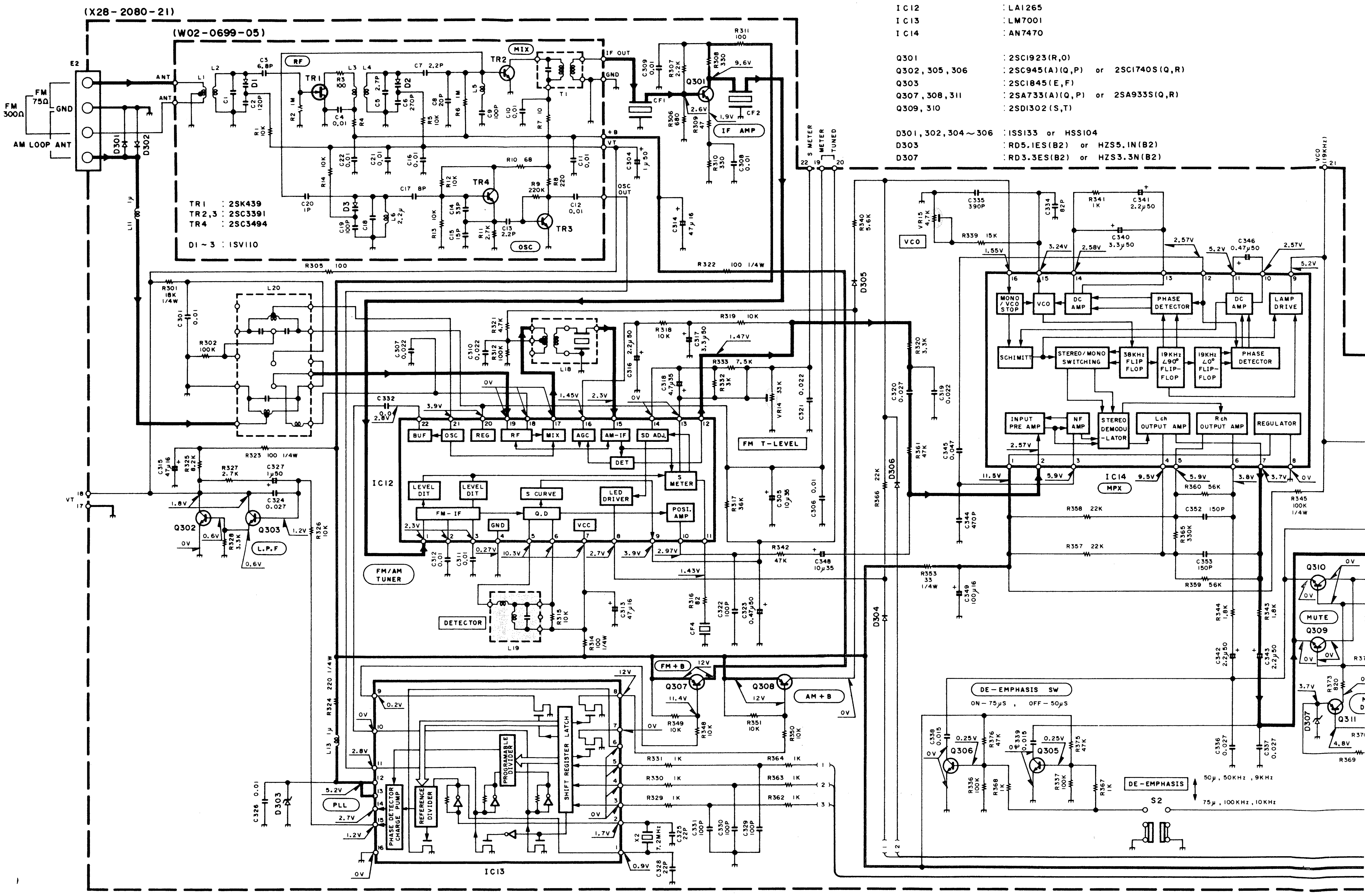
RX-53(M) C/3

PC BOARD (Foil side view)

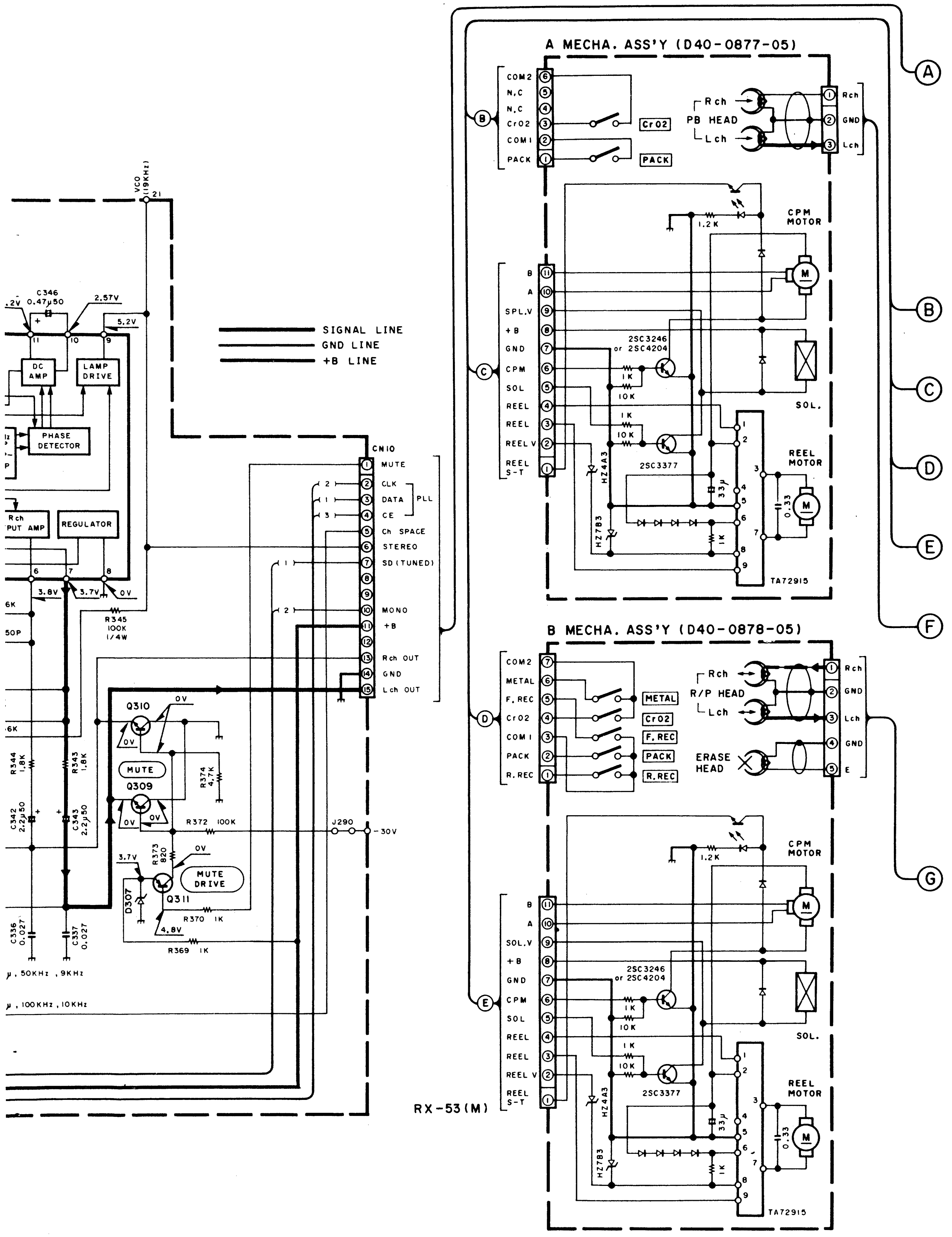

PHONO
CD/LD IN
VIDEO/DAT REC
PLAY
AV AUX/BS IN
FRONT SPEAKERS Rch Lch
SURROUND SPEAKERS
CENTER SUPER WOOFER
BEAT CANCEL
EQ. AMP
INPUT SEL.
POWER AMP
REAR AMP
PROTECT
A. V. R.
POWER SUPRLY
X09-3000-21 A/5
W02-0699-05
X09 C/5
DOLBY NR
MUTE
BIAS OSC
J25-6266-00
CN1
CN2
CN3
CN4
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC10
K2
W1
W2
W3
W4
W6
W7
W8
W15
W16
W17
W18
B MECHA ASS'Y
D40-0878-05
A MECHA ASS'Y
D40-0877-05
(2,6,8)
(1,5,7)
1
2
3
4
5
6
7


BEAT CANCEL
BEAT.C
X28-2080-21
VOL.
FM300Ω
FM75Ω
GND
AM LOOP ANT.
DEEMPHASIS SW
ANTENNA
A
C
FM FRONT-END
W02-0699-05
ANT.
AGC
GND
VT
IF OUT
+B
OSC OUT
AM RF
FM IF AMP
REC EQ
LEVEL DPSS AMP
AM IF DET
FM IF DET
LPF
PLL
BAND SW
FM MPX
EMPH. SW
MUTE
S-METER
TUN
TEST
AVR
5.6 V
μ-COM
BIAS OSC
EQ.
PB
BIAS TRAP
PB LEVEL ADJ.
REC LEVEL
HIGH SPEED DV
TAPE SPEED ADJ.
HIGH A NOR
BIAS FREQ ADJ.
BIAS FREQ
BIAS CUR ADJ
Rch
Lch
VCO (19K)
VOC (19K)
J25-6266-00
A MECHA ASS'Y
D40-0877-05
CN3
CN5
CN6
B
A
FRONT
300Ω

RX-53 (M) C/3


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
(X28-2080-21)
(W02-0699-05)
E2
FM 300Ω
FM 75Ω
GND
AM LOOP ANT
ANT
D301
D302
L1
L2
C1
C2 120P
C3 6.8P
D1
RF
TR1
R1 10K
R2 1M
R3
R4
C4 0.01
L3
L4
C5 2.7P
C6 27P
D2
C7 2.2P
C8 20P
R5 10K
R6 1M
L5
C9 100P
TR2
MIX
T1
IF OUT
GND
C10 0.01
R7 10
+B
VT
OSC OUT
C11 0.01
C16 0.01
C21 0.01
C22 0.01
R14 10K
C20 1P
D3
C19 100P
C18
L6 2.2μ
C17 8P
R12 10K
R10 68
TR4
R9 220K
R8 220
R13 10K
C14 33P
C15 15P
R11 2.7K
C13 2.2P
C12 0.01
TR3
OSC
TR1 : 2SK439
TR2,3 : 2SC3391
TR4 : 2SC3494
D1~3 : 1SV110
C309 0.01
R307 2.2K
R311 100
R308 330
9.6V
Q301
CF1
CF2
R306 680
R309 47
2.6V
1.9V
IF AMP
R310 330
C308 0.01
C304 1μ50
C314 47μ16
R322 100 1/4W
S METER
METER
TUNED
22
19
20
R305 100
L11 1μ
L20
R301 18K 1/4W
C301 0.01
R302 100K
C307 0.022
C310 0.022
R321 4.7K
R312 100K
L18
C316 2.2μ50
R318 10K
C317 3.3μ50
R319 10K
1.47V
R333 7.5K
R332 3K
C318 4.7μ35
VR14 33K
C321 0.022
R320 3.3K
C319 0.022
C320 0.027
R340 5.6K
D305
C332 0.01
3.9V
2.8V
0V
1.45V
2.3V
0V
BUF
OSC
REG
RF
MIX
AGC
AM-IF
SD ADJ.
DET
FM T-LEVEL
IC12
LEVEL DIT
LEVEL DIT
S CURVE
LED DRIVER
S METER
FM-IF
Q.D
POSI. AMP
GND
VCC
2.3V
0.27V
10.3V
2.7V
3.9V
2.97V
1.43V
C312 0.01
C311 0.01
R317 36K
C305 10μ35
C306 0.01
R342 47K
C348 10μ35
FM/AM TUNER
DETECTOR
L19
R315 10K
C313 47μ16
R314 100 1/4W
R316 82
CF4
C322 100P
C323 0.47μ50
R366 22K
D306
R361 47K
C345 0.047
R353 33 1/4W
C349 100μ16
D304
VT
18
17
C315 47μ16
R325 8.2K
R327 2.7K
C327 1μ50
C324 0.027
R323 100 1/4W
1.8V
Q302
Q303
0.6V
R328 3.3K
1.2V
R326 10K
L.P.F
0.6V
0V
R324 220 1/4W
L13 1μ
C326 0.01
D303
5.2V
PLL
2.7V
1.2V
2.8V
0.2V
0V
PHASE DETECTOR CHARGE PUMP
REFERENCE DIVIDER
PROGRAMABLE DIVIDER
SHIFT REGISTER
LATCH
IC13
12V
0V
1.7V
0.9V
X2 7.2MHz
C325 22P
C328 22P
C331 100P
C330 100P
C329 100P
R331 1K
R330 1K
R329 1K
R364 1K
R363 1K
R362 1K
FM+B
12V
Q307
11.4V
R349 10K
R348 10K
Q308
12V
R351 10K
R350 10K
AM+B
0V
VCO
VR15 4.7K
C335 390P
C334 82P
R339 15K
R341 1K
C341 2.2μ50
C340 3.3μ50
1.55V
3.24V
2.58V
2.57V
5.2V
C346 0.47μ50
2.57V
5.2V
MONO/VCO STOP
VCO
DC AMP
PHASE DETECTOR
DC AMP
LAMP DRIVE
SCHIMITT
STEREO/MONO SWITCHING
38KHz FLIP FLOP
19KHz ∠90° FLIP-FLOP
19KHz ∠0° FLIP-FLOP
PHASE DETECTOR
INPUT PRE AMP
NF AMP
STEREO DEMODU-LATOR
Lch OUTPUT AMP
Rch OUTPUT AMP
REGULATOR
2.57V
11.5V
5.9V
9.5V
5.9V
3.8V
3.7V
0V
IC14
MPX
R360 56K
R345 100K 1/4W
C344 470P
R358 22K
C352 150P
R365 330K
R357 22K
C353 150P
R359 56K
R344 1.8K
R343 1.8K
C342 2.2μ50
C343 2.2μ50
VCO 19KHz
21
Q310
MUTE
Q309
DE-EMPHASIS SW
ON-75μS, OFF-50μS
C338 0.015
0.25V
Q306
R376 47K
C339 0.015
0.25V
Q305
R375 47K
R336 100K
R368 1K
R337 100K
R367 1K
DE-EMPHASIS
50μ, 50KHz, 9KHz
75μ, 100KHz, 10KHz
S2
C336 0.027
C337 0.027
3.7V
D307
R373 820
Q311
4.8V
R369

IC12	:LA1265
IC13	:LM7001
IC14	:AN7470
Q301	:2SC1923(R,O)
Q302, 305, 306	:2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q303	:2SC1845(E,F)
Q307, 308, 311	:2SA733(A)(Q,P) or 2SA933S(Q,R)
Q309, 310	:2SD1302(S,T)
D301, 302, 304～306	:1SS133 or HSS104
D303	:RD5.1ES(B2) or HZS5.1N(B2)
D307	:RD3.3ES(B2) or HZS3.3N(B2)


A MECHA. ASS'Y (D40-0877-05)
B MECHA. ASS'Y (D40-0878-05)
COM2
N.C
N.C
CrO2
COM1
PACK
CrO2
PACK
Rch
PB HEAD
Lch
Rch
GND
Lch
CPM MOTOR
1.2K
B
A
SPL.V
+B
GND
CPM
SOL
REEL
REEL
REEL V
REEL S-T
2SC3246 or 2SC4204
1K
10K
2SC3377
HZ4A3
HZ7B3
33μ
0.33
SOL.
REEL MOTOR
TA72915
METAL
F.REC
R.REC
R/P HEAD
ERASE HEAD
E
SOL.V
A
B
C
D
E
F
G
SIGNAL LINE
GND LINE
+B LINE
VCO (19KHz)
21
C346 0.47μ50
2.57V
5.2V
DC AMP
LAMP DRIVE
PHASE DETECTOR
Rch PUT AMP
REGULATOR
3.8V
3.7V
0V
R345 100K 1/4W
CN10
MUTE
CLK
DATA
CE
PLL
Ch SPACE
STEREO
SD (TUNED)
MONO
+B
Rch OUT
GND
Lch OUT
Q310
Q309
MUTE
R344 1.8K
R343 1.8K
R374 4.7K
C342 2.2μ50
C343 2.2μ50
R372 100K
J290
-30V
R373 820
MUTE DRIVE
Q311
D307
4.8V
R370 1K
R369 1K
C336 0.027
C337 0.027
μ, 50KHz, 9KHz
μ, 100KHz, 10KHz
RX-53(M)

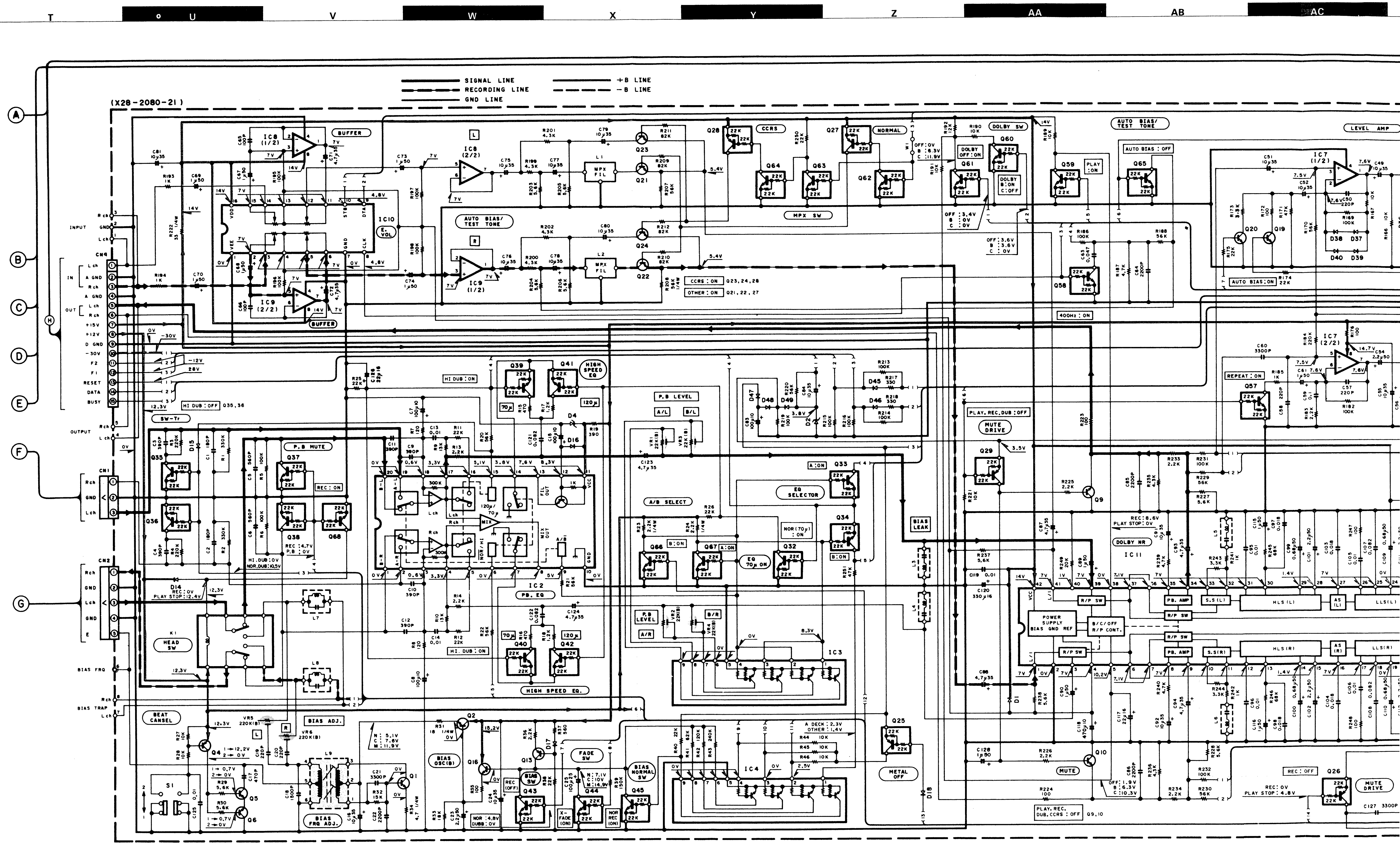
DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

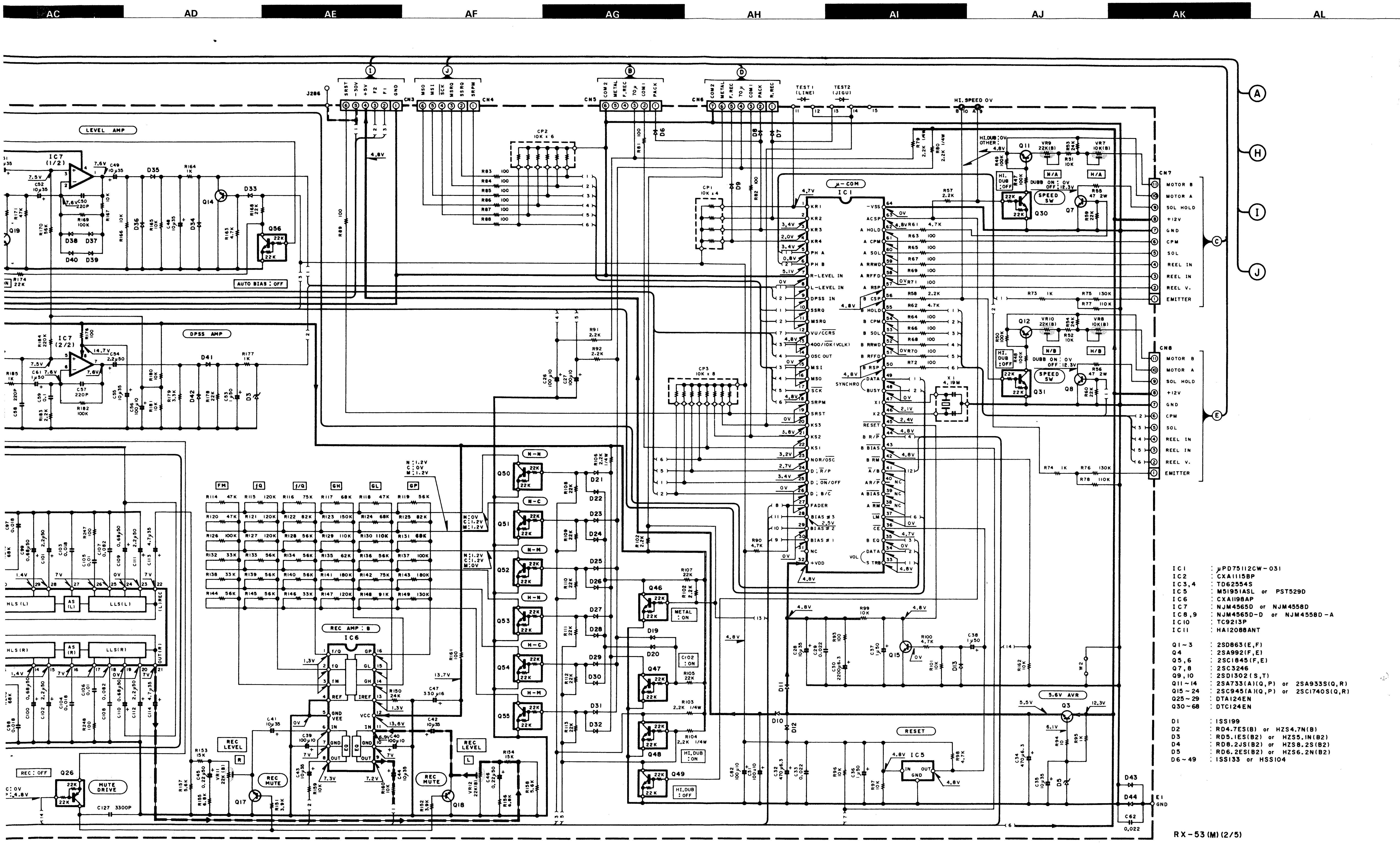
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

RX-53
KENWOOD


T
U
V
W
X
Y
Z
AA
AB
AC
1
2
3
4
5
6
7
SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
−B LINE
(X28-2080-21)
A
B
C
D
E
F
G
H
INPUT
OUTPUT
CN4
CN1
CN2
IC8 (1/2)
IC8 (2/2)
IC9 (1/2)
IC9 (2/2)
IC10
E.VOL
BUFFER
AUTO BIAS/TEST TONE
MPX FIL
MPX SW
CCRS
NORMAL
DOLBY SW
LEVEL AMP
IC7 (1/2)
IC7 (2/2)
AUTO BIAS : OFF
AUTO BIAS : ON
400Hz : ON
REPEAT : ON
PLAY : ON
CCRS : ON Q23, 24, 28
OTHER : ON Q21, 22, 27
SW-Tr
HI DUB : OFF Q35, 36
P.B MUTE
REC : ON
HIGH SPEED EQ
HI DUB : ON
P.B LEVEL
A/B SELECT
EQ SELECTOR
BIAS LEAK
PLAY, REC, DUB : OFF
MUTE DRIVE
DOLBY NR
IC11
POWER SUPPLY BIAS GND REF
B/C/OFF R/P CONT.
R/P SW
PB. AMP
HLS (L)
HLS (R)
LLS (L)
LLS (R)
IC2
PB. EQ
IC3
IC4
HEAD SW
K1
BEAT CANSEL
S1
BIAS ADJ.
BIAS FRQ ADJ.
BIAS OSC(B)
FADE SW
BIAS SW
BIAS NORMAL SW
X-FADE (ON)
NOR REC (ON)
METAL OFF
MUTE
PLAY, REC, DUB, CCRS : OFF Q9, 10
REC : OFF
HIGH SPEED EQ.
BIAS FRQ
BIAS TRAP

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensi
mètre à
légèreme
appareils


AC
AD
AE
AF
AG
AH
AI
AJ
AK
AL
LEVEL AMP
DPSS AMP
IC7 (1/2)
IC7 (2/2)
AUTO BIAS : OFF
REC AMP : B
IC6
REC LEVEL
REC MUTE
MUTE DRIVE
REC : OFF
µ-COM
IC1
CN3
CN4
CN5
CN6
CN7
CN8
J286
CP1 10K x 4
CP2 10K x 6
CP3 10K x 8
TEST1 (LINE)
TEST2 (JIGU)
HI.SPEED 0V
SPEED SW
HI.DUB : OFF
METAL : ON
CrO2 : ON
HI.DUB : ON
RESET
IC5
5.6V AVR
X1 4.19M
MOTOR B
MOTOR A
SOL HOLD
+12V
GND
CPM
SOL
REEL IN
REEL V.
EMITTER
E1 GND

IC1	:	µPD75112CW-031
IC2	:	CXA1115BP
IC3,4	:	TD62554S
IC5	:	M51951ASL or PST529D
IC6	:	CXA1198AP
IC7	:	NJM4565D or NJM4558D
IC8,9	:	NJM4565D-D or NJM4558D-A
IC10	:	TC9213P
IC11	:	HA12088ANT
Q1~3	:	2SD863(E,F)
Q4	:	2SA992(F,E)
Q5,6	:	2SC1845(F,E)
Q7,8	:	2SC3246
Q9,10	:	2SD1302(S,T)
Q11~14	:	2SA733(A)(Q,P) or 2SA933S(Q,R)
Q15~24	:	2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q25~29	:	DTA124EN
Q30~68	:	DTC124EN
D1	:	1SS199
D2	:	RD4.7ES(B) or HZS4.7N(B)
D3	:	RD5.1ES(B2) or HZS5.1N(B2)
D4	:	RD8.2JS(B2) or HZS8.2S(B2)
D5	:	RD6.2ES(B2) or HZS6.2N(B2)
D6~49	:	1SS133 or HSS104

RX-53 (M) (2/5)

high impedance ue to variations its.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

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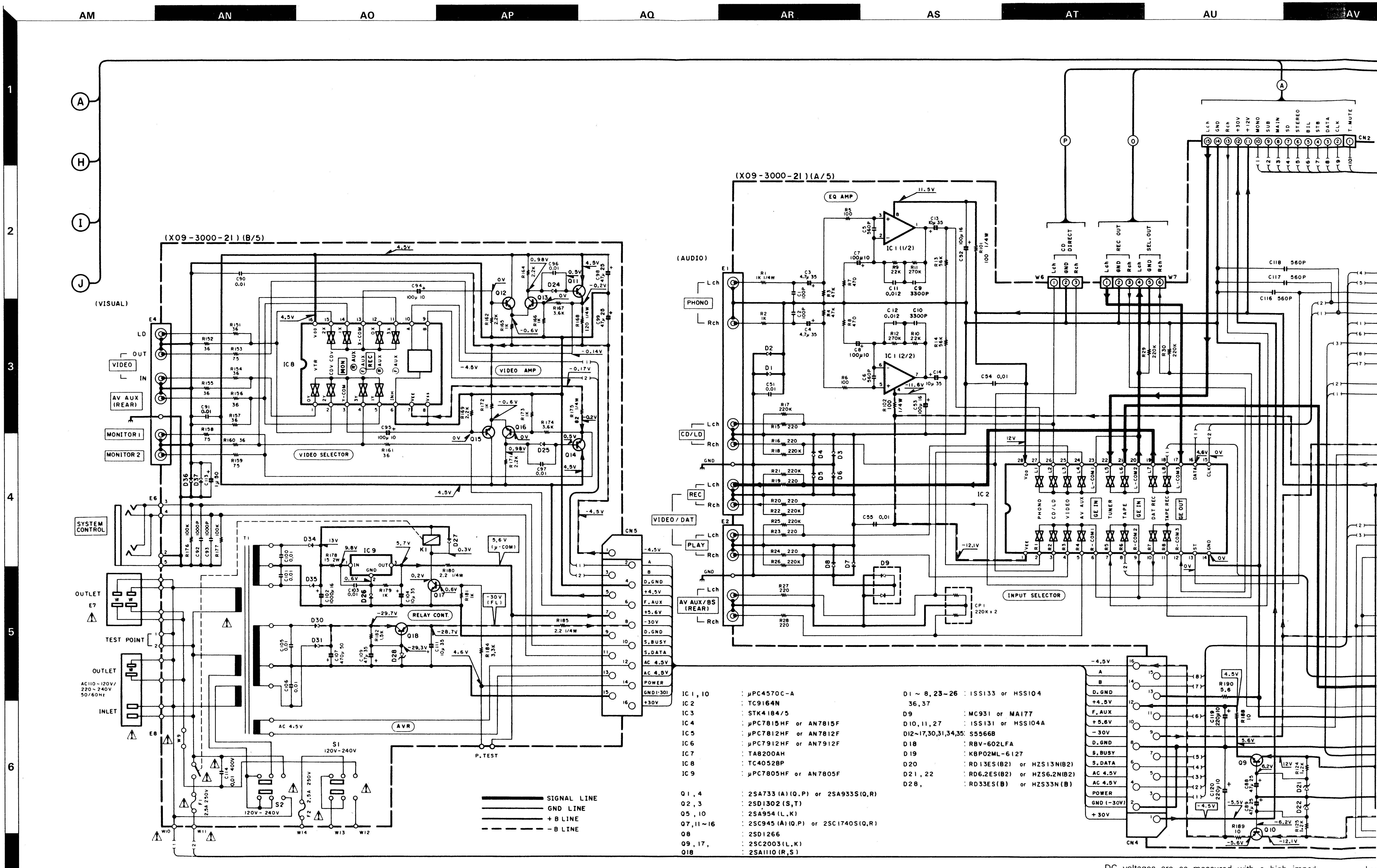
RX-53

KENWOOD


AM
AN
AO
AP
AQ
AR
AS
AT
AU
AV
1
2
3
4
5
6
7
(X09-3000-21)(B/5)
(VISUAL)
VIDEO AMP
VIDEO SELECTOR
RELAY CONT.
AVR
IC8
IC9
T1
S1 120V-240V
S2 120V-240V
P.TEST
LD
VIDEO OUT IN
AV AUX (REAR)
MONITOR 1
MONITOR 2
SYSTEM CONTROL
OUTLET E7
TEST POINT
OUTLET AC110~120V/ 220~240V 50/60Hz
INLET
CN5
(X09-3000-21)(A/5)
(AUDIO)
EQ AMP
INPUT SELECTOR
IC1 (1/2)
IC1 (2/2)
IC2
PHONO
CD/LD
REC
VIDEO/DAT
PLAY
AV AUX/BS (REAR)
CD DIRECT
REC OUT
SEL.OUT
W6
W7
CN2
CN4
SIGNAL LINE
GND LINE
+ B LINE
- B LINE

IC1, 10	: μPC4570C-A
IC2	: TC9164N
IC3	: STK4184/5
IC4	: μPC7815HF or AN7815F
IC5	: μPC7812HF or AN7812F
IC6	: μPC7912HF or AN7912F
IC7	: TA8200AH
IC8	: TC40528P
IC9	: μPC7805HF or AN7805F
Q1, 4	: 2SA733(A)(Q.P) or 2SA933S(Q,R)
Q2, 3	: 2SD1302(S,T)
Q5, 10	: 2SA954(L.K)
Q7, 11~16	: 2SC945(A)(Q.P) or 2SC1740S(Q,R)
Q8	: 2SD1266
Q9, 17,	: 2SC2003(L.K)
Q18	: 2SA1110(R,S)

D1 ~ 8, 23~26 36, 37	: 1SS133 or HSS104
D9	: MC931 or MA177
D10, 11, 27	: 1SS131 or HSS104A
D12~17,30,31,34,35	: S5566B
D18	: RBV-602LFA
D19	: KBP02ML-6127
D20	: RD13ES(B2) or HZS13N(B2)
D21, 22	: RD6.2ES(B2) or HZS6.2N(B2)
D28,	: RD33ES(B) or HZS33N(B)

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

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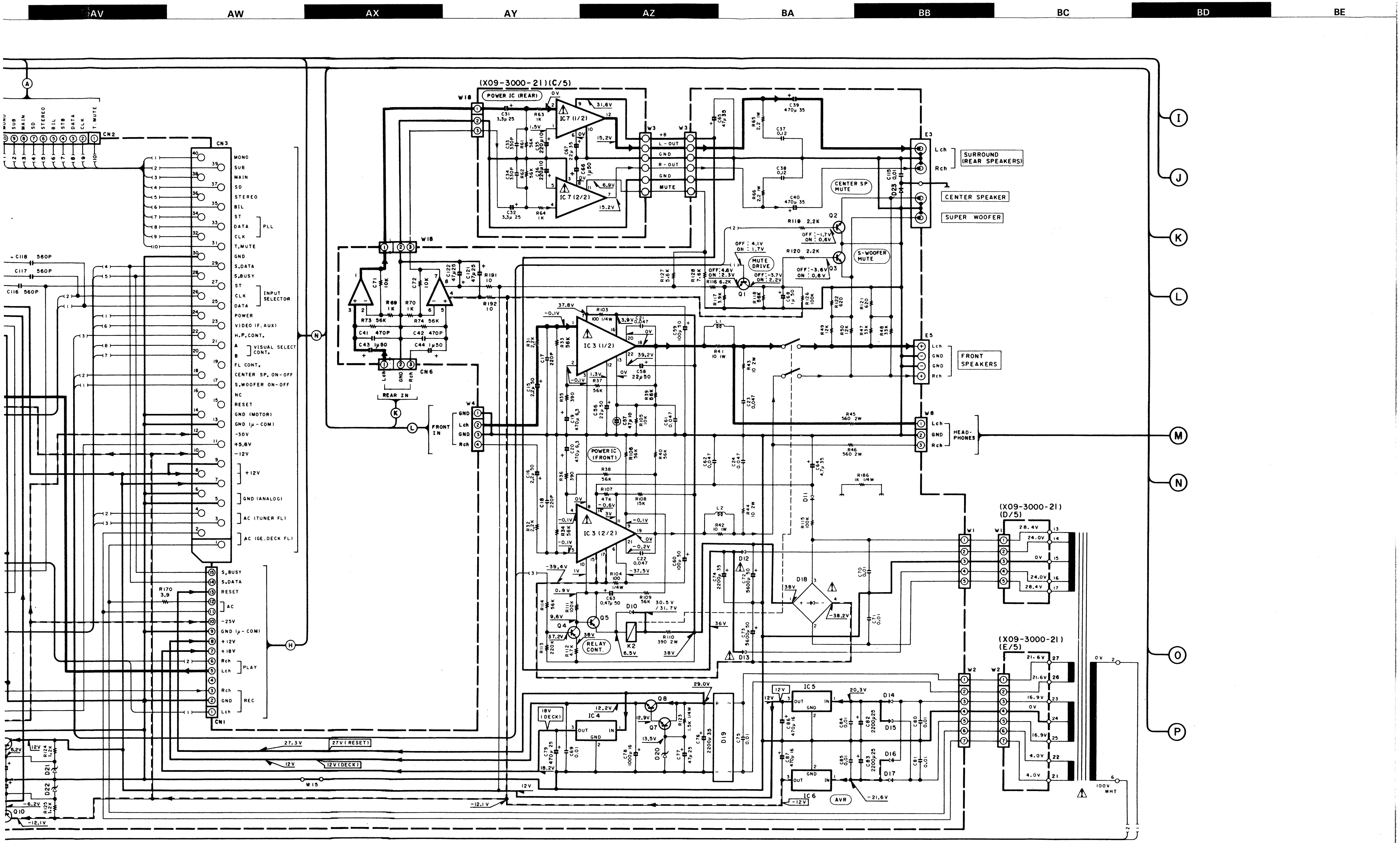
AV
AW
AX
AY
AZ
BA
BB
BC
BD
BE
(X09-3000-21)(C/5)
POWER IC (REAR)
IC7 (1/2)
IC7 (2/2)
W18
W3
+B
L-OUT
GND
R-OUT
GND
MUTE
E3
Lch
Rch
SURROUND (REAR SPEAKERS)
CENTER SPEAKER
SUPER WOOFER
CENTER SP MUTE
MUTE DRIVE
S-WOOFER MUTE
CN2
CN3
MONO
SUB
MAIN
SD
STEREO
BIL
ST
DATA
CLK
T.MUTE
PLL
GND
S.DATA
S.BUSY
INPUT SELECTOR
POWER
VIDEO (F.AUX)
H.P.CONT.
VISUAL SELECT CONT.
FL CONT.
CENTER SP. ON-OFF
S.WOOFER ON-OFF
NC
RESET
GND (MOTOR)
GND (μ-COM)
-30V
+5.6V
-12V
+12V
GND (ANALOG)
AC (TUNER FL)
AC (GE.DECK FL)
CN6
REAR IN
W4
FRONT IN
POWER IC (FRONT)
IC3 (1/2)
IC3 (2/2)
E5
FRONT SPEAKERS
W8
HEAD-PHONES
RELAY CONT.
K2
(X09-3000-21) (D/5)
(X09-3000-21) (E/5)
W1
W2
IC4
IC5
IC6
AVR
D18
D19
CN1
-25V
+18V
PLAY
REC
W15
27V (RESET)
12V (DECK)
18V (DECK)
100V WHT

a high impedance
due to variations
units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

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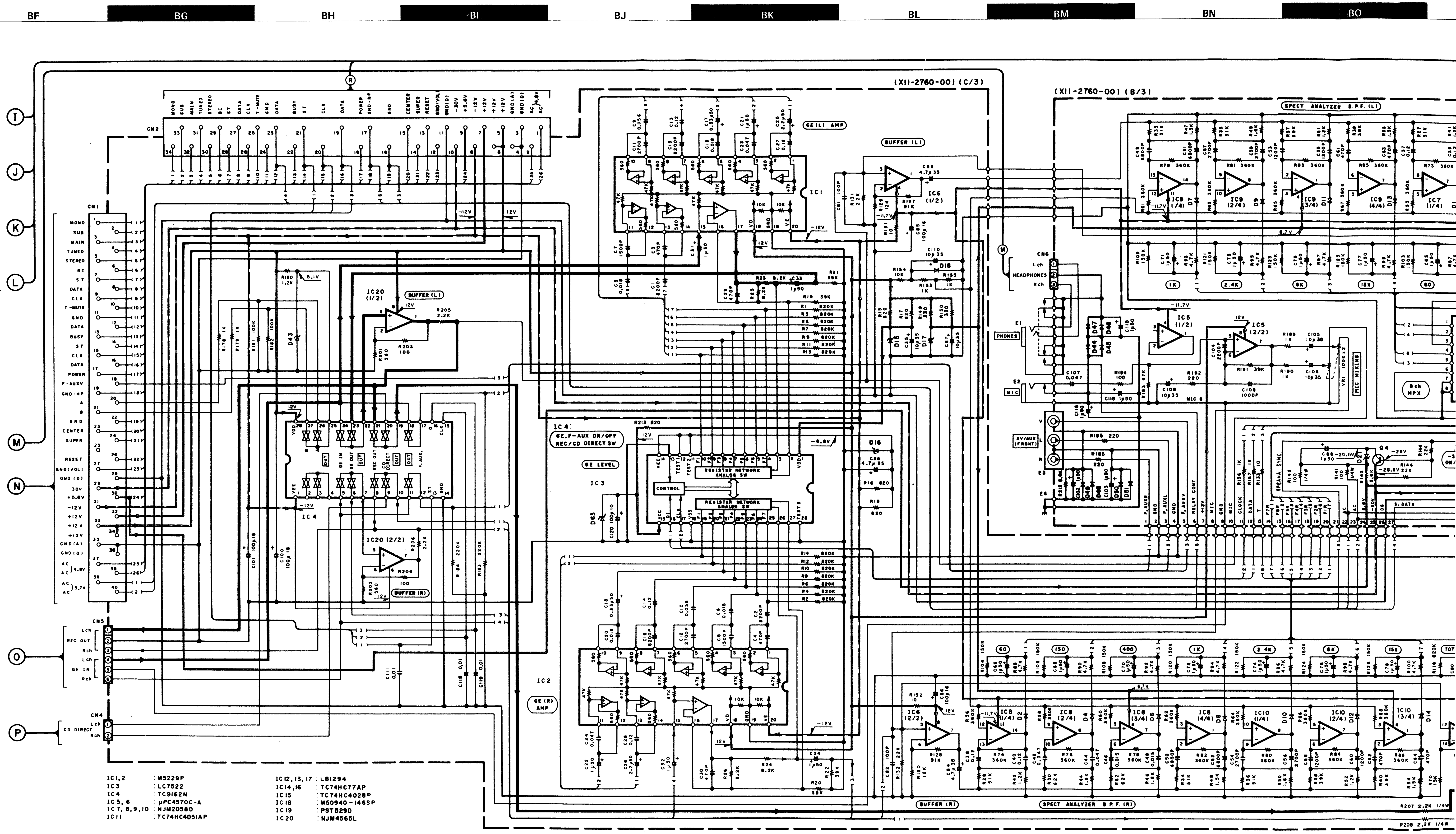
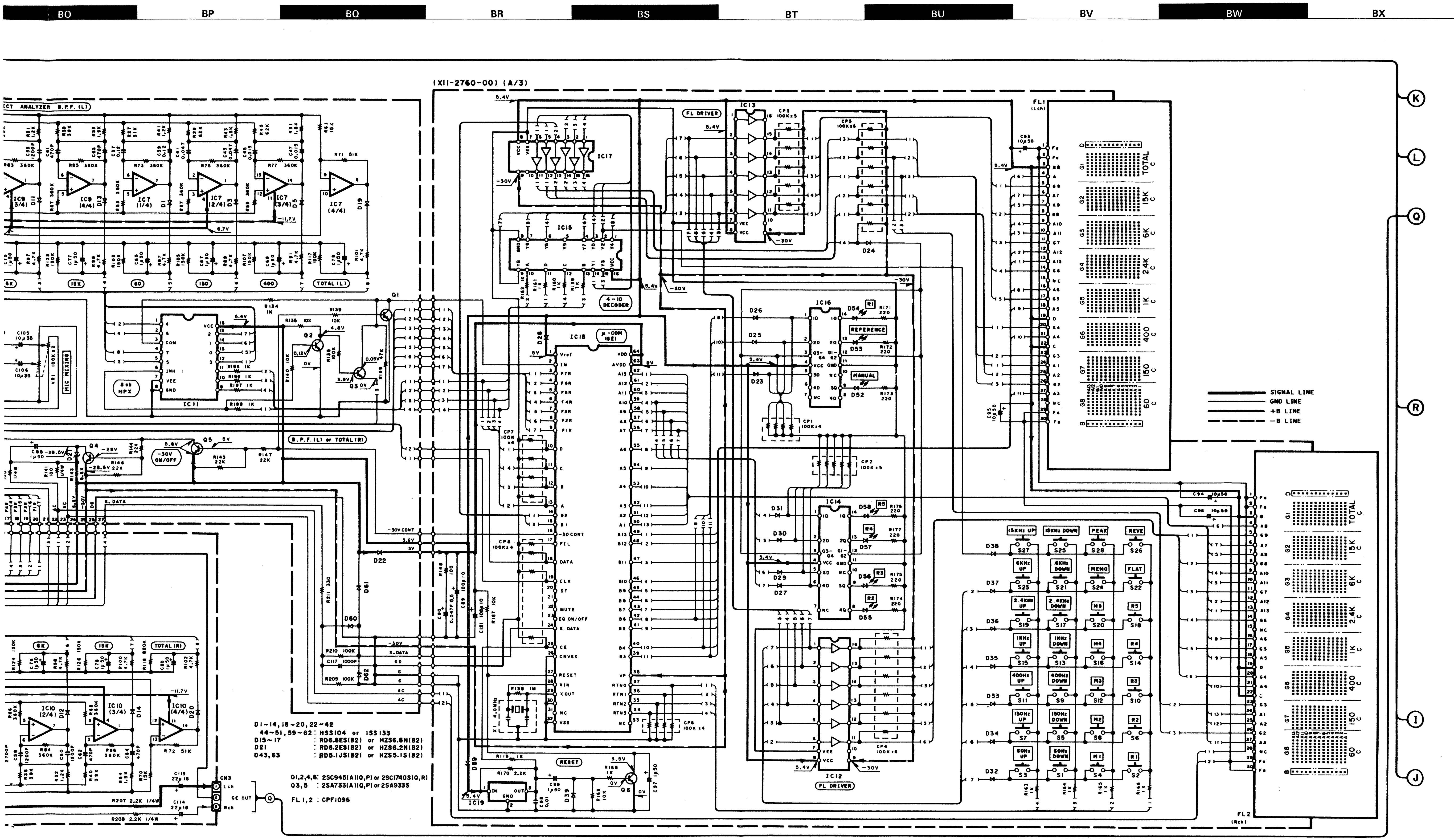
RX-53
KENWOOD


BF
BG
BH
BI
BJ
BK
BL
BM
BN
BO
(X11-2760-00) (C/3)
(X11-2760-00) (B/3)
CN1
CN2
CN4
CN5
CN6
GE(L) AMP
GE(R) AMP
BUFFER (L)
BUFFER (R)
IC20 (1/2)
IC20 (2/2)
IC4: GE, F-AUX ON/OFF REC/CD DIRECT SW
GE LEVEL
IC1
IC2
IC3
IC4
IC5 (1/2)
IC5 (2/2)
IC6 (1/2)
IC6 (2/2)
REGISTER NETWORK ANALOG SW
CONTROL
SPECT ANALYZER B.P.F. (L)
SPECT ANALYZER B.P.F. (R)
HEADPHONES
PHONES
MIC
MIC MIXING
AV/AUX (FRONT)
REC OUT
GE IN
CD DIRECT
8ch MPX
60
150
400
1K
2.4K
6K
15K
R207 2.2K 1/4W
R208 2.2K 1/4W
I
J
K
L
M
N
O
P
R

IC1,2 : M5229P
IC3 : LC7522
IC4 : TC9162N
IC5, 6 : μPC4570C-A
IC7, 8, 9, 10 : NJM2058D
IC11 : TC74HC4051AP

IC12, 13, 17 : LB1294
IC14, 16 : TC74HC77AP
IC15 : TC74HC4028P
IC18 : M50940-146SP
IC19 : PST529D
IC20 : NJM4565L

DC
volt
betv


BO
BP
BQ
BR
BS
BT
BU
BV
BW
BX
(X11-2760-00) (A/3)
FL DRIVER
IC13
IC17
IC15
4-10 DECODER
IC18
μ-COM (6E)
IC16
REFERENCE
MANUAL
IC14
IC12
IC11
IC19
8ch MPX
MIC MIXING
B.P.F. (L) or TOTAL (R)
-30V ON/OFF
RESET
FL1 (Lch)
FL2 (Rch)
TOTAL
15K
6K
2.4K
1K
400
150
60
SIGNAL LINE
GND LINE
+B LINE
-B LINE
15KHz UP
15KHz DOWN
PEAK
REVE
6KHz UP
6KHz DOWN
MEMO
FLAT
2.4KHz UP
2.4KHz DOWN
M5
R5
1KHz UP
1KHz DOWN
M4
R4
400Hz UP
400Hz DOWN
M3
R3
150Hz UP
150Hz DOWN
M2
R2
60Hz UP
60Hz DOWN
M1
R1
CN3
Lch
GE OUT
Rch
K
L
Q
R
I
J
D1~14, 18~20, 22~42
44~51, 59~62 : HSS104 or 1SS133
D15~17 : RD6.8ES(B2) or HZS6.8N(B2)
D21 : RD6.2ES(B2) or HZS6.2N(B2)
D43, 63 : RD5.1JS(B2) or HZS5.1S(B2)
Q1,2,4,6: 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q3,5 : 2SA733(A)(Q,P) or 2SA933S
FL1,2 : CPF1096

RX-53(M)(4/5)

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

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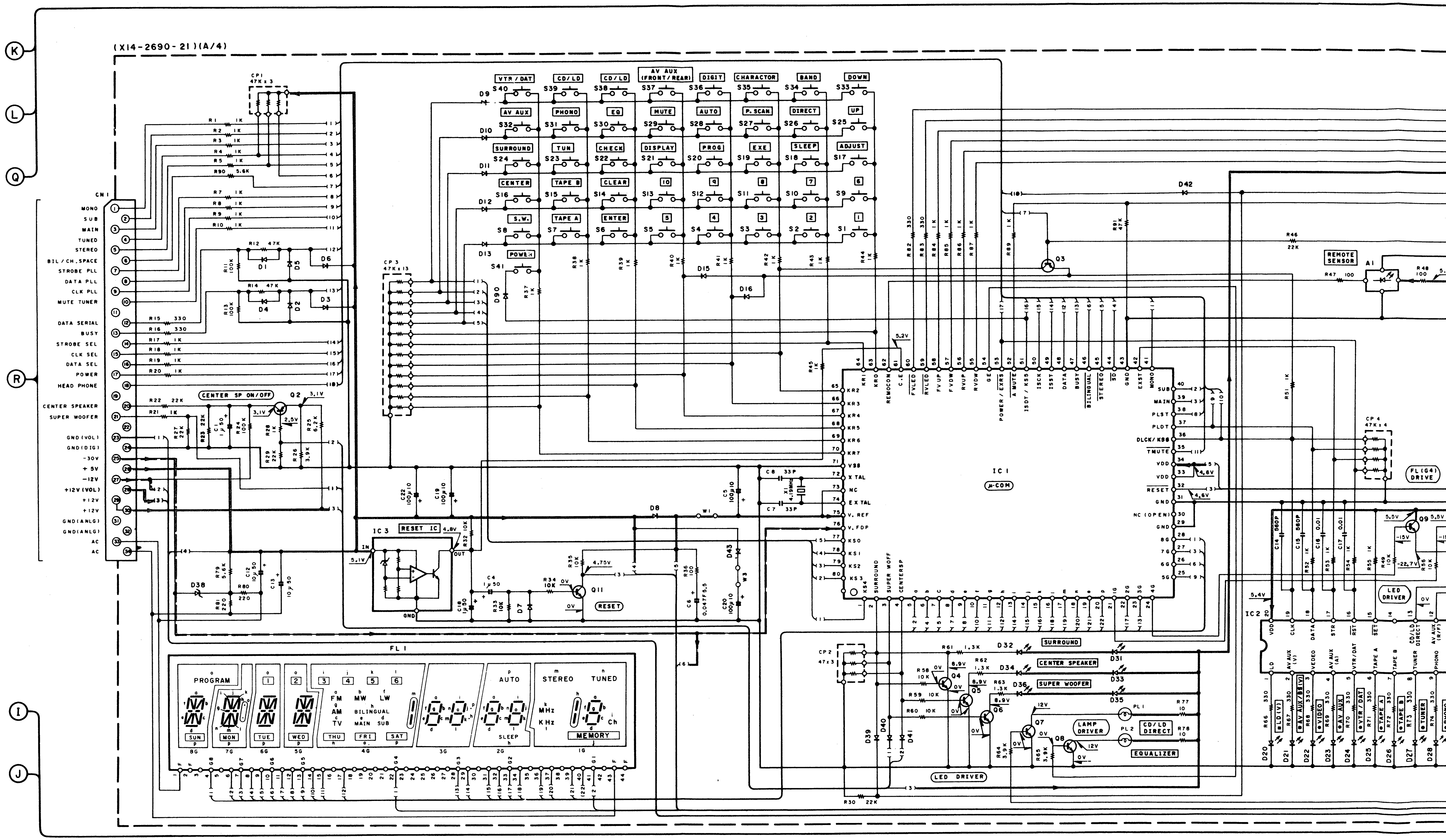
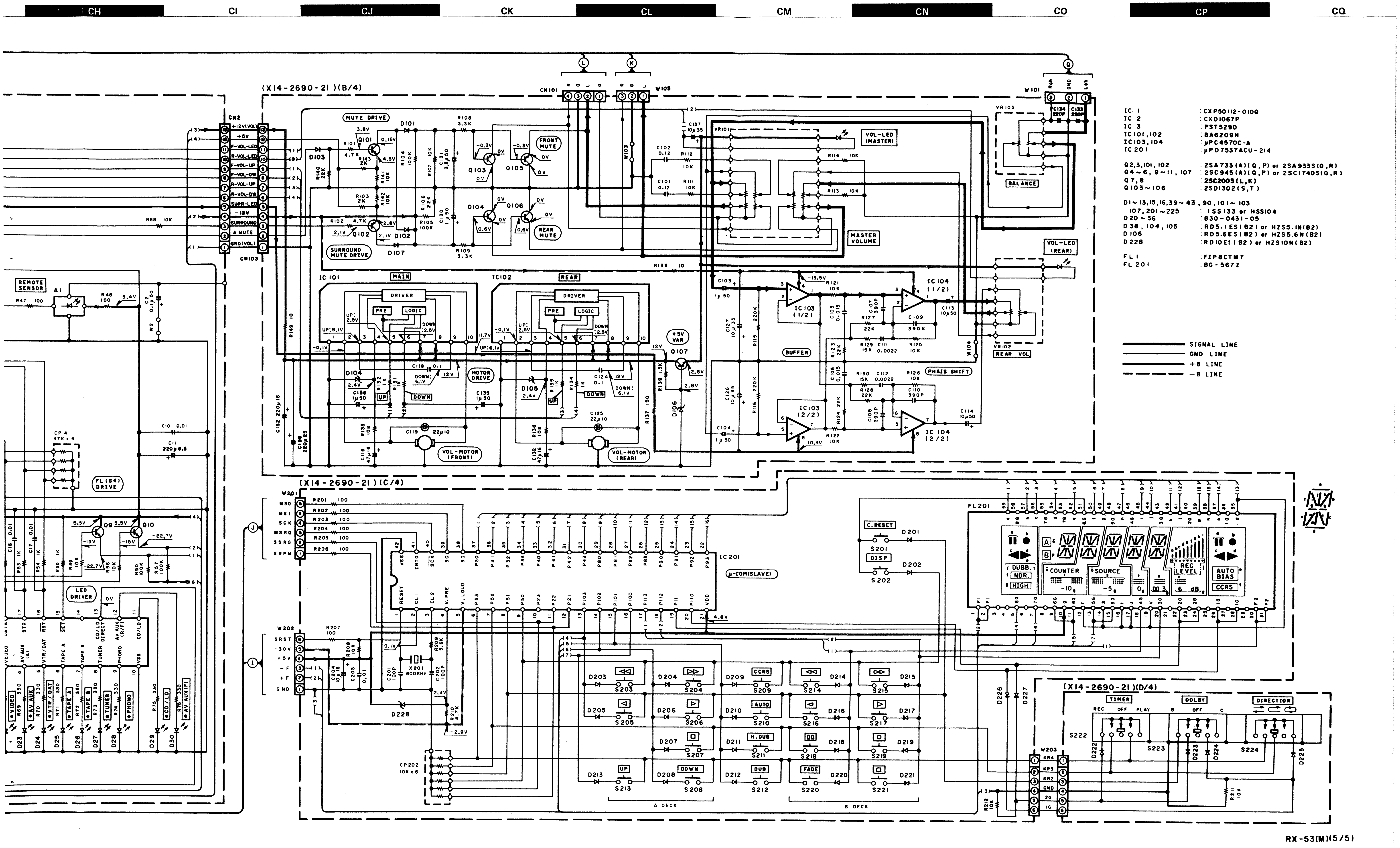
RX-53

KENWOOD


BY
BZ
CA
CB
CC
CD
CE
CF
CG
CH
1
2
3
4
5
6
7
K
L
Q
R
I
J
(X14-2690-21)(A/4)
CN1
MONO
SUB
MAIN
TUNED
STEREO
BIL/CH.SPACE
STROBE PLL
DATA PLL
CLK PLL
MUTE TUNER
DATA SERIAL
BUSY
STROBE SEL
CLK SEL
DATA SEL
POWER
HEAD PHONE
CENTER SPEAKER
SUPER WOOFER
GND(VOL)
GND(DIG)
-30V
+5V
-12V
+12V(VOL)
+12V
+12V
GND(ANLG)
GND(ANLG)
AC
AC
CP1 47K x 3
CP3 47K x 13
CP2 47K x 3
CP4 47K x 4
CENTER SP ON/OFF
Q2
IC3
RESET IC
Q11
RESET
VTR/DAT
CD/LD
CD/LD
AV AUX (FRONT/REAR)
DIGIT
CHARACTOR
BAND
DOWN
AV AUX
PHONO
EQ
MUTE
AUTO
P.SCAN
DIRECT
UP
SURROUND
TUN
CHECK
DISPLAY
PROG
EXE
SLEEP
ADJUST
CENTER
TAPE B
CLEAR
TAPE A
ENTER
S.W.
POWER
IC1
µ-COM
KR2
KR3
KR4
KR5
KR6
KR7
VSS
X TAL
NC
EX TAL
V. REF
V. FDP
KS0
KS1
KS2
KS3
KRI
KRO
REMOCON
C.E
FVLED
RVLED
FVUP
FVDW
RVUP
RVDW
OE
POWER/EXRS
A MUTE
ISDT/KS5
ISCK
ISST
DATA
BUSY
BILINGUAL
STEREO
SD
GND
EXST
MONO
SUB
MAIN
PLST
PLDT
DLCK/KS6
TMUTE
VDD
VDD
RESET
GND
NC (OPEN)
GND
SURROUND
SUPER WOFF
CENTERSP
X1 4.19MHz
REMOTE SENSOR
A1
Q3
D42
FL(G4) DRIVE
LED DRIVER
IC2
Q9
FL1
PROGRAM
SUN
MON
TUE
WED
THU
FRI
SAT
FM
MW
LW
AM
TV
BILINGUAL
MAIN
SUB
AUTO
STEREO
TUNED
MHz
KHz
SLEEP
MEMORY
Ch
SURROUND
CENTER SPEAKER
SUPER WOOFER
Q4
Q5
Q6
Q7
Q8
LAMP DRIVER
CD/LD DIRECT
EQUALIZER
LED DRIVER
PL1
PL2
LD
AV AUX (V)
VIDEO
AV AUX (A)
VTR/DAT
TAPE A
TAPE B
TUNER
PHONO
CD/LD DIRECT
AV AUX (R/F)
VDD
CLK
DATA
STR
RST
SET
LD(V)
AV AUX/BS(V)
VIDEO
AV AUX
VTR/DAT
TAPE A
TAPE B
TUNER

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.


CH
CI
CJ
CK
CL
CM
CN
CO
CP
CQ
(X14-2690-21)(B/4)
(X14-2690-21)(C/4)
(X14-2690-21)(D/4)
CN2
CN101
CN103
W105
W101
W201
W202
W203
MUTE DRIVE
SURROUND MUTE DRIVE
FRONT MUTE
REAR MUTE
VOL-LED (MASTER)
VOL-LED (REAR)
MASTER VOLUME
BALANCE
REAR VOL
BUFFER
PHAIS SHIFT
MOTOR DRIVE
VOL-MOTOR (FRONT)
VOL-MOTOR (REAR)
MAIN
REAR
DRIVER
PRE
LOGIC
UP
DOWN
+5V VAR
IC101
IC102
IC103 (1/2)
IC103 (2/2)
IC104 (1/2)
IC104 (2/2)
IC201
μ-COM(SLAVE)
REMOTE SENSOR
FL(G4) DRIVE
LED DRIVER
FL201
C.RESET
DISP
S201
S202
S203
S204
S205
S206
S207
S208
S209
S210
S211
S212
S213
S214
S215
S216
S217
S218
S219
S220
S221
S222
S223
S224
CCRS
AUTO
H.DUB
DUB
FADE
UP
DOWN
A DECK
B DECK
TIMER
DOLBY
DIRECTION
REC OFF PLAY
B OFF C
CP202 10K×6
X201 600KHz
COUNTER
SOURCE
REC LEVEL
AUTO BIAS
CCRS
DUBB.
NOR.
HIGH
VIDEO
AV AUX
VTR/DAT
TAPE A
TAPE B
TUNER
PHONO
CD/LD
AV AUX(F)

IC 1	:CXP50112-010Q
IC 2	:CXD1067P
IC 3	:PST529D
IC101,102	:BA6209N
IC103,104	:μPC4570C-A
IC201	:μPD7537ACU-214
Q2,3,101,102	:2SA733(A)(Q,P) or 2SA933S(Q,R)
Q4~6, 9~11, 107	:2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q7,8	:2SC2003(L,K)
Q103~106	:2SD1302(S,T)
D1~13,15,16,39~43,90,101~103 107,201~225	:1SS133 or HSS104
D20~36	:B30-0431-05
D38,104,105	:RD5.1ES(B2) or HZS5.1N(B2)
D106	:RD5.6ES(B2) or HZS5.6N(B2)
D228	:RD10ES(B2) or HZS10N(B2)
FL1	:FIP8CTM7
FL201	:BG-567Z

SIGNAL LINE
GND LINE
+B LINE
−B LINE

RX-53(M)(5/5)

red with a high impedance
y slightly due to variations
ts or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

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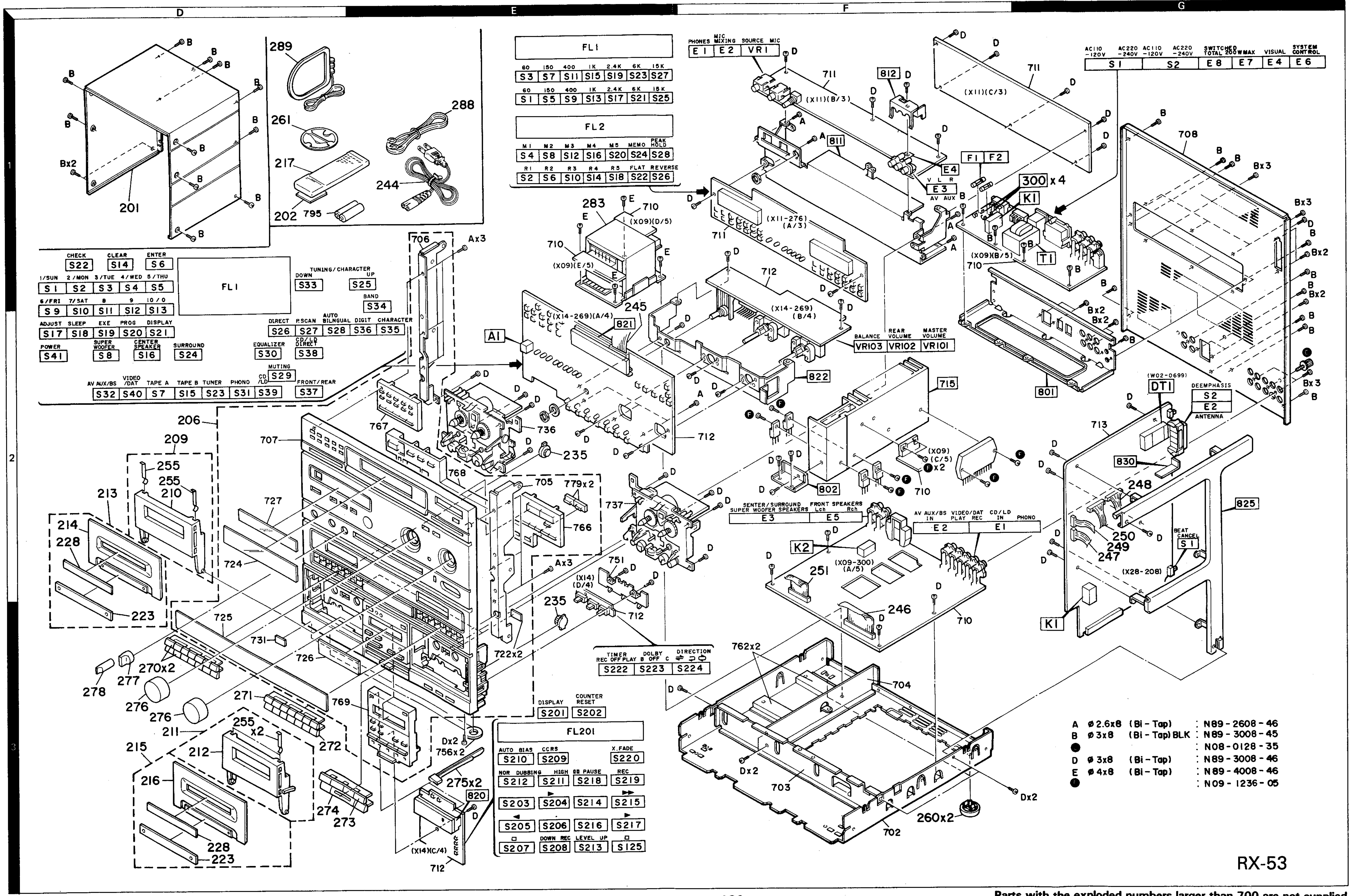
RX-53

KENWOOD

EXPLODED VIEW

Refer to page 144 about cassttte mechanism exploded view.


D
E
F
G
201
202
795
217
261
289
288
244
FL1
FL2
FL201
S22 S14 S6
S1 S2 S3 S4 S5
S9 S10 S11 S12 S13
S17 S18 S19 S20 S21
S41 S8 S16 S24
S32 S40 S7 S15 S23 S31 S39
S33 S25 S34
S26 S27 S28 S36 S35
S30 S38 S29 S37
S3 S7 S11 S15 S19 S23 S27
S1 S5 S9 S13 S17 S21 S25
S4 S8 S12 S16 S20 S24 S28
S2 S6 S10 S14 S18 S22 S26
E1 E2 VR1
S1 S2 E8 E7 E4 E6
VR103 VR102 VR101
S222 S223 S224
S201 S202
S210 S209 S220
S212 S211 S218 S219
S203 S204 S214 S215
S205 S206 S216 S217
S207 S208 S213 S125
E3 E5
E2 E1
DT1
K1
K2
T1
F1 F2
300 x4
701
702
703
704
705
706
707
708
710
711
712
713
715
722x2
724
725
726
727
731
736
737
751
756x2
762x2
766
767
768
769
779x2
801
802
811
812
820
821
822
825
830
A1
206
209
210
211
212
213
214
215
216
223
228
235
245
246
247
248
249
250
251
255
260x2
270x2
271
272
273
274
275x2
276
277
278
283
RX-53

A	ø2.6x8	(Bi-Tap)	: N89-2608-46
B	ø3x8	(Bi-Tap) BLK	: N89-3008-45
●			: N08-0128-35
D	ø3x8	(Bi-Tap)	: N89-3008-46
E	ø4x8	(Bi-Tap)	: N89-4008-46
●			: N09-1236-05

Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
RX-53 (Main Unit)						
201	1D	*	A01-1787-01	METALLIC CABINET		
202	1D		A09-0078-08	BATTERY COVER		
206	2D	*	A20-5856-01	PANEL ASSY		
209	2D		A53-1137-13	CASSETTE HOLDER ASSY(A)		
210	2D	*	A53-1138-02	CASSETTE HOLDER (A)		
211	3D		A53-1139-13	CASSETTE HOLDER ASSY(B)		
212	3D	*	A53-1140-02	CASSETTE HOLDER (B)		
213	2D		A53-1141-14	CASSETTE LID ASSY (A)		
214	2D	*	A53-1142-02	CASSETTE LID (A)		
215	3D		A53-1143-14	CASSETTE LID ASSY (B)		
216	3D	*	A53-1144-02	CASSETTE LID (B)		
217	1D	*	A70-0301-05	REMOTE CONTROLLER ASSY		
223	3D		B07-1906-04	ESCUTCHEON		
228	2D,3D		B10-1045-04	FRONT GLASS		
-		*	B50-9783-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B50-9784-00	INSTRUCTION MANUAL(F,S)		
235	2E,3E		D39-0176-05	DAMPER		
⚠ 244	1E		E30-2575-05	AC POWER CORD		
245	1E	*	E31-7144-05	WIRING HARNESS(34P)X11-X14		
246	3F	*	E31-7145-05	WIRING HARNESS(40P)X09-X11		
247	2G	*	E31-7332-05	WIRING HARNESS(6P)R,A-X28		
248	2G	*	E31-7333-05	WIRING HARNESS(10P)R,A-X28		
249	2G	*	E31-7334-05	WIRING HARNESS(7P)B,B-X28		
250	2G	*	E31-7335-05	WIRING HARNESS(11P)B,B-X28		
251	3F	*	E31-7393-05	WIRING HARNESS(16P)X09-X09		
255	2D,3D		G02-0394-14	FLAT SPRING		
-		*	H01-8597-04	ITEM CARTON CASE		
-		*	H10-3862-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3863-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-		*	H25-0378-14	PROTECTION BAG		
260	3F		J02-0370-05	FOOT		
261	1D		J19-2815-04	ANTENNA HOLDER		
-			J61-0307-05	WIRE BAND		
270	3D		K29-3732-03	KNOB(GE-L)		
271	3D		K29-3733-03	KNOB(GE-RU(M))		
272	3D		K29-3734-03	KNOB(GE-RD(R))		
273	3D		K29-3735-03	KNOB(X-PLAY)		
274	3D		K29-3736-03	KNOB(X-STOP)		
275	3E		K29-3737-04	KNOB(EJECT)		
276	3D		K29-3739-04	KNOB(VOLUME)		
277	3D		K29-3740-04	KNOB(BALANCE)		
278	3D		K29-3741-04	KNOB(MIC)		
⚠ 283	1E	*	L01-8805-05	POWER TRANSFORMER		
A			N89-2608-46	BINDING HEAD TAPTITE SCREW		
B			N89-3008-45	BINDING HEAD TAPTITE SCREW		
C			N08-0128-35	BINDING POST (GND)		
D			N89-3008-46	BINDING HEAD TAPTITE SCREW		
E			N89-4008-46	BINDING HEAD TAPTITE SCREW		

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288	1E		T90-0176-05	T TYPE ANTENNA		
289	1D		T90-0173-05	LOOP ANTENNA		
289	1D		T90-0174-05	LOOP ANTENNA		
Audio Unit (X09-3000-21)						
C1 ,2			CC45FSL1H101J	CERAMIC 100PF J		
C3 ,4			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C5 ,6			C91-0754-05	CERAMIC 560PF K		
C7 ,8			CE04KW1A101M	ELECTRO 100UF 10WV		
C9 ,10			CF92FV1H332J	MF 3300PF J		
C11 ,12			CF92FV1H123J	MF 0.012UF J		
C13 ,14			CE04KW1V100M	ELECTRO 10UF 35WV		
C15 ,16			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C17 ,18			CC45FSL1H221J	CERAMIC 220PF J		
C19			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C20			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C21 ,22			CF92FV1H473J	MF 0.047UF J		
C23 ,24			CF92FV1H473J	MF 0.047UF J		
C31 ,32			CE04JW1E3R3M	ELECTRO 3.3UF 25WV		
C33 ,34			C91-0751-05	CERAMIC 330PF K		
C35 ,36			CE04KW1A221M	ELECTRO 220UF 10WV		
C37 ,38			CF92FV1H124J	MF 0.12UF J		
C39 ,40			CE04KW1V471M	ELECTRO 470UF 35WV		
C41 ,42			CK45FB1H471K	CERAMIC 470PF K		
C43 ,44			CE04JW1H010M	ELECTRO 1.0UF 50WV		
C51			C91-0769-05	CERAMIC 0.01UF M		
C52 ,53			CE04KW1C101M	ELECTRO 100UF 16WV		
C54 ,55			CF92FV1H103J	MF 0.010UF J		
C56			CE04KW1H220M	ELECTRO 22UF 50WV		
C57			C90-1334-05	NP-ELEC 47UF 10WV		
C58			CE04KW1H220M	ELECTRO 22UF 50WV		
C59 ,60			CE04KW1H101M	ELECTRO 100UF 50WV		
C61			CF92FV1H473J	MF 0.047UF J		
C62			CF92FV1H473J	MF 0.047UF J		
C63			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C64			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C65			CE04KW1V470M	ELECTRO 47UF 35WV		
C66			CE04JW1H010M	ELECTRO 1.0UF 50WV		
C67		*	CE04JW1V220M	ELECTRO 22UF 35WV		
C68			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C69			CF92FV1H103J	MF 0.010UF J		
C70 ,71			CK45FF1H103Z	CERAMIC 0.010UF Z		
C72 ,73			C90-1756-05	ELECTRO 5600UF 50WV		
C74			CE04KW1V222M	ELECTRO 2200UF 35WV		
C75			CK45FF1H103Z	CERAMIC 0.010UF Z		
C76			CE04KW1V222M	ELECTRO 2200UF 35WV		
C77			CE04KW1E470M	ELECTRO 47UF 25WV		
C78			CE04KW1C102M	ELECTRO 1000UF 16WV		
C79			CE04KW1E471M	ELECTRO 470UF 25WV		
C80 ,81			CK45FF1H103Z	CERAMIC 0.010UF Z		
C82 ,83			CE04KW1E222M	ELECTRO 2200UF 25WV		
C84 ,85			CF92FV1H103J	MF 0.010UF J		
C86 ,87			CE04KW1C471M	ELECTRO 470UF 16WV		
C88 ,89			CE04KW1E470M	ELECTRO 47UF 25WV		
C90 ,91			C91-0769-05	CERAMIC 0.01UF M		

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C92 ,93			CK45FB1H102K	CERAMIC 1000PF K		
C94 ,95			CE04KW1A101M	ELECTRO 100UF 10WV		
C96 ,97			CF92FV1H103J	MF 0.010UF J		
C98 ,99			CE04KW1E470M	ELECTRO 47UF 25WV		
C100,101			CK45FF1H103Z	CERAMIC 0.010UF Z		
C102			CE04KW1C102M	ELECTRO 1000UF 16WV		
C103			CK45FF1H103Z	CERAMIC 0.010UF Z		
C104			CE04KW1V100M	ELECTRO 10UF 35WV		
C105,106			CK45FF1H103Z	CERAMIC 0.010UF Z		
C107			CE04KW1H471M	ELECTRO 470UF 50WV		
C109			CE04KW1V470M	ELECTRO 47UF 35WV		
C111			CE04KW1V100M	ELECTRO 10UF 35WV		
C113			CE04KW1H010M	ELECTRO 1.0UF 50WV		
⚠ C114			C91-0647-05	CERAMIC 0.01UF P		
C115			C91-0769-05	CERAMIC 0.01UF M		
C116,117			C91-0754-05	CERAMIC 560PF K		
C118			CK45FB1H561K	CERAMIC 560PF K		
C119,120			CE04KW1A221M	ELECTRO 220UF 10WV		
C121,122			CE04KW1E470M	ELECTRO 47UF 25WV		
CN3			E10-4001-05	FLAT CABLE CONNECTOR		
CN4 ,5			E10-1604-05	FLAT CABLE CONNECTOR		
E1	2F		E13-0634-05	PHONO JACK(CD/LD)		
E2	2F		E13-0446-05	PHONO JACK(4P)(AV AUX)		
E3	2F	*	E13-0479-05	PHONO JACK(SUPERWOOFER)		
E4	1G	*	E13-0635-05	PHONO JACK(VISUAL)		
E5	2F		E20-0475-05	LOCK TERMINAL BOARD(F,SPEAKERS		
E6	1G		E11-0188-05	MINIATURE PHONE JACK		
⚠ E7	1G		E03-0095-05	AC OUTLET		
E8	1G		E03-0100-05	INLET WITH AC OUTLET		
⚠ F1 ,2	1F		F05-2525-05	FUSE (SEMKO) (250V T2.5A)		
300	1G		J13-0054-05	FUSE CLIP		
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
T1	1G	*	L01-8965-05	POWER TRANSFORMER		
B			N89-3008-45	BINDING HEAD TAPTITE SCREW		
F			N09-1236-05	TAPPING SCREW (3X16)		
CP1			R90-0490-05	MULTI-COMP 220KX2 J 1/6W		
R41 ,42			RS14DB3A100J	FL-PROOF RS 10 J 1W		
R43 ,44			RS14DB3D100J	FL-PROOF RS 10 J 2W		
R45 ,46			RS14DB3D561J	FL-PROOF RS 560 J 2W		
R65 ,66			RS14DB3A2R2J	FL-PROOF RS 2.2 J 1W		
R103,104			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R110			RS14DB3D391J	FL-PROOF RS 390 J 2W		
R123			RD14AB2E152J	FL-PROOF RD 1.5K J 1/4W		
R178			RS14KB3D150J	FL-PROOF RS 15 J 2W		
R180			RD14AB2E2R2J	FL-PROOF RD 2.2 J 1/4W		
R185			RD14AB2E2R2J	FL-PROOF RD 2.2 J 1/4W		
K1	1G		S51-1052-05	MAGNETIC RELAY		
K2	2F		S51-2078-05	MAGNETIC RELAY		
S1 ,2	1G		S31-2131-05	SLIDE SWITCH (POWER TYPE)		
D1 -8			HSS104	DIODE		
D1 -8			1SS133	DIODE		

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RX-53

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D9			MA177	DIODE		
D9			MC931	DIODE		
D10 ,11			HSS104A	DIODE		
D10 ,11			1SS131	DIODE		
D12 -17			S5566B	DIODE		
⚠ D18			RBV-602LFA	DIODE		
D19			KBP02ML-6127	DIODE		
D20			HZS13N(B2)	ZENER DIODE		
D20			RD13ES(B2)	ZENER DIODE		
D21 ,22			HZS6.2N(B2)	ZENER DIODE		
D21 ,22			RD6.2ES(B2)	ZENER DIODE		
D23 -26			HSS104	DIODE		
D23 -26			1SS133	DIODE		
D27			HSS104A	DIODE		
D27			1SS131	DIODE		
D28			HZS33N(B)	ZENER DIODE		
D28			RD33ES(B)	ZENER DIODE		
D30 ,31			S5566B	DIODE		
D34 ,35			S5566B	DIODE		
D36 ,37			HSS104	DIODE		
D36 ,37			1SS133	DIODE		
IC1			UPC4570C-A	IC(OP AMP X2)		
IC2			TC9164N	IC(16CH BILATERAL SELECTOR SW)		
⚠ IC3			STK4184/5	IC(POWER AMP(FRONT))		
IC4			AN7815F	IC(VOLTAGE REGULATOR/ +15V)		
IC4			UPC7815HF	IC(VOLTAGE REGULATOR/ +15V)		
IC5			AN7812F	IC(VOLTAGE REGULATOR/ +12V)		
IC5			UPC7812HF	IC(VOLTAGE REGULATOR/ +12V)		
IC6			AN7912F	IC(VOLTAGE REGULATOR/ -12V)		
IC6			UPC7912HF	IC(VOLTAGE REGULATOR/ -12V)		
IC7		*	TA8200AH	IC(POWER AMP(REAR))		
IC8			TC4052BP	IC(4CH MPX/DE-MPX)		
IC9			AN7805F	IC(VOLTAGE REGULATOR/ +5V)		
IC9			UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)		
IC10			UPC4570C-A	IC(OP AMP X2)GULATOR/ +5V)		
Q1			2SA733(A)(Q,P)	TRANSISTOR		
Q1			2SA933S(Q,R)	TRANSISTOR		
Q2 ,3			2SD1302(S,T)	TRANSISTOR		
Q4			2SA733(A)(Q,P)	TRANSISTOR		
Q4			2SA933S(Q,R)	TRANSISTOR		
Q5			2SA954(L,K)	TRANSISTOR		
Q7			2SC1740S(Q,R)	TRANSISTOR		
Q7			2SC945(A)(Q,P)	TRANSISTOR		
Q8 ,9			2SD1266	TRANSISTOR		
Q10			2SB941	TRANSISTOR		
Q11 -16			2SC1740S(Q,R)	TRANSISTOR		
Q11 -16			2SC945(A)(Q,P)	TRANSISTOR		
Q17			2SC2003(L,K)	TRANSISTOR		
Q18			2SA1110(R,S)	TRANSISTOR		
Control Unit (X11-2760-00)						
D52 -58			B30-1223-05	LED(LN21CPH(V)-C)		
C1 ,2			CF92FV1H822J	MF 8200PF J		
C3 ,4			CF92FV1H471J	MF 470PF J		
C5 ,6			CF92FV1H183J	MF 0.018UF J		

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C7 ,8			CF92FV1H152J	MF	1500PF	J		
C9 ,10			CF92FV1H563J	MF	0.056UF	J		
C11 ,12			CF92FV1H272J	MF	2700PF	J		
C13 ,14			CF92FV1H124J	MF	0.12UF	J		
C15 ,16			CF92FV1H822J	MF	8200PF	J		
C17 ,18			CE04KW1HR33M	ELECTRO	0.33UF	50WV		
C19 ,20			CF92FV1H183J	MF	0.018UF	J		
C21 ,22			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C23 ,24			CF92FV1H473J	MF	0.047UF	J		
C25 ,26			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C27 ,28			CF92FV1H124J	MF	0.12UF	J		
C29 ,30			CF92FV1H471J	MF	470PF	J		
C31 -34			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C35			CE04KW1V100M	ELECTRO	10UF	35WV		
C36			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C37 -40			CF92FV1H124J	MF	0.12UF	J		
C41 -44			CF92FV1H473J	MF	0.047UF	J		
C45 -48			CF92FV1H153J	MF	0.015UF	J		
C49 -52			CF92FV1H682J	MF	6800PF	J		
C53			CF92FV1H122J	MF	1200PF	J		
C54			CF92FV1H272J	MF	2700PF	J		
C55			CF92FV1H122J	MF	1200PF	J		
C56 ,57			CF92FV1H272J	MF	2700PF	J		
C58			CF92FV1H122J	MF	1200PF	J		
C59			CF92FV1H272J	MF	2700PF	J		
C60			CF92FV1H122J	MF	1200PF	J		
C61 -64			CF92FV1H471J	MF	470PF	J		
C65 -79			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C80			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C81 ,82			CC45FSL1H101J	CERAMIC	100PF	J		
C83 ,84			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C85 ,86			CE04KW1C101M	ELECTRO	100UF	16WV		
C87			CE04KW1V100M	ELECTRO	10UF	35WV		
C88			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C89			CE04CW1A101M	ELECTRO	100UF	10WV		
C90			C91-0937-05	BACKUP	0.047F	5.5WV		
C93 -96			CE04KW1H100M	ELECTRO	10UF	50WV		
C97			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C98			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C99			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C100,101			CE04KW1C101M	ELECTRO	100UF	16WV		
C102,103			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C104			CK45FB1H222K	CERAMIC	2200PF	K		
C105,106			CE04KW1V100M	ELECTRO	10UF	35WV		
C107			CF92FV1H473J	MF	0.047UF	J		
C108			CK45FB1H102K	CERAMIC	1000PF	K		
C109			CE04KW1V100M	ELECTRO	10UF	35WV		
C111			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C113			CE04JW1C220M	ELECTRO	22UF	16WV		
C114			CE04CW1C220M	ELECTRO	22UF	16WV		
C115,116			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C117			CK45FB1H102K	CERAMIC	1000PF	K		
C118,119			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C120			CE04KW1A101M	ELECTRO	100UF	10WV		
C121			CE04CW1A101M	ELECTRO	100UF	10WV		

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CN1			E10-4001-05	FLAT CABLE CONNECTOR		
CN2			E10-3401-05	FLAT CABLE CONNECTOR		
E1	1F		E11-0174-05	PHONE JACK(PHONES)		
E2	1F		E11-0159-05	PHONE JACK(3P)(MIC MIXING)		
E3	1F		E13-0311-05	PHONO JACK(AV AVX)		
E4	1F		E23-0149-05	TERMINAL		
X1			L78-0244-05	RESONATOR		
D			N89-3008-46	BINDING HEAD TAPTITE SCREW		
CP1			R90-0291-05	MULTI-COMP 100KX4 J 1/6W		
CP2 ,3			R90-0203-05	MULTI-COMP 100KX5 J 1/6W		
CP4			R90-0426-05	MULTI-COMP 100KX6 J 1/6W		
CP5			R90-0500-05	MULTI-COMP 100KX6 J 1/4W		
CP6 ,7			R90-0482-05	MULTI-COMP 100KX4 J 1/6W		
CP8			R90-0203-05	MULTI-COMP 100KX5 J 1/6W		
VR1	1F		R10-5036-05	POTENTIOMETER(100KX2,C)(MIC)		
S1 -28	1E		S40-1064-05	PUSH SWITCH		
D1 -14			HSS104	DIODE		
D1 -14			1SS133	DIODE		
D15 -17			HZS6.8N(B2)	ZENER DIODE		
D15 -17			RD6.8ES(B2)	ZENER DIODE		
D18 -39			HSS104	DIODE		
D18 -39			1SS133	DIODE		
D21			HZS6.2N(B2)	ZENER DIODE		
D21			RD6.2ES(B2)	ZENER DIODE		
D22 -42			HSS104	DIODE		
D22 -42			1SS133	DIODE		
D43			HZS5.1S(B2)	ZENER DIODE		
D43			RD5.1JS(B2)	ZENER DIODE		
D44 -51			HSS104	DIODE		
D44 -51			1SS133	DIODE		
D59 -62			HSS104	DIODE		
D59 -62			1SS133	DIODE		
D63			HZS5.1S(B2)	ZENER DIODE		
D63			RD5.1JS(B2)	ZENER DIODE		
FL1 ,2	1E		CPF1096	FLUORESCENT INDICATOR TUBE		
IC1 ,2			M5229P	IC(7CH GRAPHIC EQUALIZER)		
IC3			LC7522	IC(7CH GRAPHIC EQUALIZER)		
IC4			TC9162N	IC(ANALOG SWITCH ARRAY)		
IC5 ,6			UPC4570C-A	IC(OP AMP X2)		
IC7 -10			NJM2058D	IC(OP AMP X4)		
IC11			TC74HC4051AP	IC(ANALOG MULTIPLEXER)		
IC12,13			LB1294	IC(6CH DARLINGTON DRIVER)		
IC14		*	TC74HC77AP	IC(LED DRIVER)		
IC15			TC74HC4028P	IC(2 TO 10 DECODER)		
IC16		*	TC74HC77AP	IC(LED DRIVER)		
IC17			LB1294	IC(6CH DARLINGTON DRIVER)		
IC18			M50940-146SP	IC(MICROPROCESSOR)		
IC19			PST529D	IC(SYSTEM RESET)		
IC20			M5218L	IC(OP AMP X2)		
Q1 ,2			2SC1740S(Q,R)	TRANSISTOR		
Q1 ,2			2SC945(A)(Q,P)	TRANSISTOR		

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Q3			2SA733(A)(Q,P)	TRANSISTOR		
Q3			2SA933S(Q,R)	TRANSISTOR		
Q4			2SC1740S(Q,R)	TRANSISTOR		
Q4			2SC945(A)(Q,P)	TRANSISTOR		
Q5			2SA733(A)(Q,P)	TRANSISTOR		
Q5			2SA933S(Q,R)	TRANSISTOR		
Q6			2SC1740S(Q,R)	TRANSISTOR		
Q6			2SC945(A)(Q,P)	TRANSISTOR		

Display Unit (X14-2690-21)

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
-			B30-1284-08	LED(VOLUME)		
D20 -36			B30-1223-05	LED(LN21CPH)		
PL1 ,2			B30-1260-05	LAMP (12V 0.11A)		
C1			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C2			CE04KW1H0R1M	ELECTRO 0.1UF 50WV		
C4			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C5			CE04JW1A101M	ELECTRO 100UF 10WV		
C6			C91-0937-05	BACKUP 0.047F 5.5WV		
C7 ,8			CC45FCH1H330J	CERAMIC 33PF J		
C10			CK45FF1H103Z	CERAMIC 0.010UF Z		
C11			CE04KW0J221M	ELECTRO 220UF 6.3WV		
C12 ,13			CE04KW1H100M	ELECTRO 10UF 50WV		
C14 ,15			CK45FB1H561K	CERAMIC 560PF K		
C16 ,17			CK45FF1H103Z	CERAMIC 0.010UF Z		
C18			CE04JW1H010M	ELECTRO 1.0UF 50WV		
C19 ,20			CE04JW1A101M	ELECTRO 100UF 10WV		
C22			CE04CW1A101M	ELECTRO 100UF 10WV		
C103,104			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C105,106			CF92FV1H153J	MF 0.015UF J		
C107-110			CK45FB1H391K	CERAMIC 390PF K		
C111,112			CK45FB1H222K	CERAMIC 2200PF K		
C113,114			CE04KW1H100M	ELECTRO 10UF 50WV		
C116			CE04KW1C470M	ELECTRO 47UF 16WV		
C118			CF92FV1H104J	MF 0.10UF J		
C119			C90-1333-05	NP-ELEC 22UF 10WV		
C123			CE04KW1C470M	ELECTRO 47UF 16WV		
C124			CF92FV1H104J	MF 0.10UF J		
C125			C90-1333-05	NP-ELEC 22UF 10WV		
C126			CE04KW1E470M	ELECTRO 47UF 25WV		
C127			CE04KW1V100M	ELECTRO 10UF 35WV		
C130			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C131			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C132			CE04KW1C221M	ELECTRO 220UF 16WV		
C133,134			CC45FSL1H221J	CERAMIC 220PF J		
C135,136			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C137			CE04KW1V100M	ELECTRO 10UF 35WV		
C138			CE04KW1E221M	ELECTRO 220UF 25WV		
C201,202			CC45FSL1H101J	CERAMIC 100PF J		
C203			CK45FF1H103Z	CERAMIC 0.010UF Z		
C204			CE04JW1C100M	ELECTRO 10UF 16WV		
CN1		*	E10-3402-05	FLAT CABLE CONNECTOR		
X1		*	L77-1176-05	CRYSTAL RESONATOR		
X201			L78-0239-05	RESONATOR		

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RX-53

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D			N89-3008-46	BINDING HEAD TAPTITE SCREW		
CP1 ,2			R90-0460-05	MULTIPLE RESISTOR		
CP3			R90-0192-05	MULTI-COMP 47KX13 J 1/6W		
CP4			R90-0202-05	MULTI-COMP 47KX4 J 1/6W		
CP202			R90-0810-05	MULTIPLE RESISTOR		
VR101	2F	*	R29-5032-05	POTENTIOMETER(MASTER VOLUME)		
VR102	2F	*	R29-5033-05	POTENTIOMETER(REAR VOLUME)		
VR103	2F	*	R01-5068-05	POTENTIOMETER(BALANCE)		
S1 -41	1D,2D		S40-1064-05	PUSH SWITCH(1-10/0,CLEAR)		
S201-221	3E		S40-1064-05	PUSH SWITCH(DISPLAY)		
S222-224	3E		S31-1033-05	SLIDE SWITCH(TIMER,DOLBY)		
D1 -13			HSS104	DIODE		
D1 -13			1SS133	DIODE		
D15 ,16			HSS104	DIODE		
D15 ,16			1SS133	DIODE		
D38			HZS5.1N(B2)	ZENER DIODE		
D38			RD5.1ES(B2)	ZENER DIODE		
D39 -43			HSS104	DIODE		
D39 -43			1SS133	DIODE		
D90			HSS104	DIODE		
D90			1SS133	DIODE		
D101-103			HSS104	DIODE		
D101-103			1SS133	DIODE		
D104,105			HZS5.1N(B2)	ZENER DIODE		
D104,105			RD5.1ES(B2)	ZENER DIODE		
D106			HZS5.6N(B2)	ZENER DIODE		
D106			RD5.6ES(B2)	ZENER DIODE		
D107			HSS104	DIODE		
D107			1SS133	DIODE		
D201-227			HSS104	DIODE		
D201-227			1SS133	DIODE		
D228			HZS10N(B2)	ZENER DIODE		
D228			RD10ES(B2)	ZENER DIODE		
FL1	1D	*	FIP8CTM7	FLUORESCENT INDICATOR TUBE		
FL201	3E		BG-567Z	FLUORESCENT INDICATOR TUBE		
IC1			CXP50112-010Q	IC(MICROPROCESSOR)		
IC2			CXD1067P	IC(SERIAL-PARALLEL CONVERTER)		
IC3			PST529D	IC(SYSTEM RESET)		
IC101,102			BA6209N	IC(MOTOR DRIVER)		
IC103,104			UPC4570C-A	IC(OP AMP X2)		
IC201			UPD7537ACU-214	IC(MICROPROCESSOR)		
Q2 ,3			2SA733(A)(Q,P)	TRANSISTOR		
Q2 ,3			2SA933S(Q,R)	TRANSISTOR		
Q4 -6			2SC1740S(Q,R)	TRANSISTOR		
Q4 -6			2SC945(A)(Q,P)	TRANSISTOR		
Q7 ,8			2SC2003(L,K)	TRANSISTOR		
Q9 -11			2SC1740S(Q,R)	TRANSISTOR		
Q9 -11			2SC945(A)(Q,P)	TRANSISTOR		
Q101,102			2SA733(A)(Q,P)	TRANSISTOR		
Q101,102			2SA933S(Q,P)	TRANSISTOR		
Q103-106			2SD1302(S,T)	TRANSISTOR		
Q107			2SC1740S(Q,R)	TRANSISTOR		
Q107			2SC945(A)(Q,P)	TRANSISTOR		

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A1	2E		W02-0975-05	ELECTRIC CIRCUIT MODULE		
Deck/Amplifier Unit (X28-2080-21)						
C1 ,2			CC45FSL1H181J	CERAMIC 180PF J		
C3 ,4			CK45FB1H391K	CERAMIC 390PF K		
C5 ,6			CK45FB1H561K	CERAMIC 560PF K		
C7 ,8			CE04KW1A101M	ELECTRO 100UF 10WV		
C9 -12			CK45FB1H391K	CERAMIC 390PF K		
C13 ,14			CF92FV1H103J	MF 0.010UF J		
C15			CE04KW1A101M	ELECTRO 100UF 10WV		
C16			CE04KW1V100M	ELECTRO 10UF 35WV		
C17			CK45FB2H471K	CERAMIC 470PF K		
C18			C91-0775-05	POLYPRO 1500PF J		
C19 ,20			CC45FSL1H221J	CERAMIC 220PF J		
C21			CF92FV1H332J	MF 3300PF J		
C22			CF92FV1H222J	MF 2200PF J		
C23			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C24			CE04KW1V100M	ELECTRO 10UF 35WV		
C25			CE04KW1E101M	ELECTRO 100UF 25WV		
C26 ,27			CE04KW1A101M	ELECTRO 100UF 10WV		
C28			CE04KW1V100M	ELECTRO 10UF 35WV		
C29			CK45FF1H223Z	CERAMIC 0.022UF Z		
C30			CE04KW0J222M	ELECTRO 2200UF 6.3WV		
C31			CE04KW1A101M	ELECTRO 100UF 10WV		
C32			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C33			CK45FF1H223Z	CERAMIC 0.022UF Z		
C34			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C35			CE04KW1V100M	ELECTRO 10UF 35WV		
C36 -38			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C39 ,40			CE04KW1A101M	ELECTRO 100UF 10WV		
C41 -44			CE04KW1V100M	ELECTRO 10UF 35WV		
C45 ,46			CE04KW1HR22M	ELECTRO 0.22UF 50WV		
C47			CE04KW1C331M	ELECTRO 330UF 16WV		
C48 ,49			CE04KW1V100M	ELECTRO 10UF 35WV		
C50			CC45FSL1H221J	CERAMIC 220PF J		
C51 ,52			CE04KW1V100M	ELECTRO 10UF 35WV		
C53			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C54			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C55			CE04KW1V100M	ELECTRO 10UF 35WV		
C56			CE04KW1A101M	ELECTRO 100UF 10WV		
C57 ,58			CC45FSL1H221J	CERAMIC 220PF J		
C59			CF92FV1H104J	MF 0.10UF J		
C60			CF92FV1H332J	MF 3300PF J		
C61			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C62			CK45FF1H223Z	CERAMIC 0.022UF Z		
C63			CF92FV1H473J	MF 0.047UF J		
C64			CF92FV1H222J	MF 2200PF J		
C65 ,66			CC45FSL1H101J	CERAMIC 100PF J		
C67 -70			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C71 ,72			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C73 ,74			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C75 -81			CE04KW1V100M	ELECTRO 10UF 35WV		
C82 ,83			CE04KW1A101M	ELECTRO 100UF 10WV		
C84			CE04KW1V100M	ELECTRO 10UF 35WV		
C85 ,86			CF92FV1H222J	MF 2200PF J		

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C87 ,88			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C89 ,90			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C91 ,92			CE04KW1V100M	ELECTRO	10UF	35WV		
C93 ,94			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C95 ,96			CF92FV1H103J	MF	0.010UF	J		
C97 ,98			CF92FV1H183J	MF	0.018UF	J		
C99 ,100			CE04KW1HR68M	ELECTRO	0.68UF	50WV		
C101,102			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C103,104			CF92FV1H183J	MF	0.018UF	J		
C105,106			CF92FV1H103J	MF	0.010UF	J		
C107,108			CF92FV1H823J	MF	0.082UF	J		
C109,110			CE04KW1HR68M	ELECTRO	0.68UF	50WV		
C111,112			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C113,114			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C115,116			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C117			CE04KW1C220M	ELECTRO	22UF	16WV		
C118			CE04KW1A471M	ELECTRO	470UF	10WV		
C119			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C120			CE04KW1C331M	ELECTRO	330UF	16WV		
C121,122			CF92FV1H823J	MF	0.082UF	J		
C123,124			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C125			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C126			CE04KW1C220M	ELECTRO	22UF	16WV		
C127			CF92FV1H332J	MF	3300PF	J		
C128			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C301			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C304			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C305			CE04KW1V100M	ELECTRO	10UF	35WV		
C306			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C307			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C308,309			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C310			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C311,312			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C313-315			CE04KW1C470M	ELECTRO	47UF	16WV		
C316			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C317			CE04KW1H3R3M	ELECTRO	3.3UF	50WV		
C318			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C319			CF92FV1H223J	MF	0.022UF	J		
C320			CF92FV1H273J	MF	0.027UF	J		
C321			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C322			CC45FSL1H101J	CERAMIC	100PF	J		
C323			CE04KW1HR47M	ELECTRO	0.47UF	50WV		
C324			CF92FV1H273J	MF	0.027UF	J		
C325			CC45FCH1H220J	CERAMIC	22PF	J		
C326			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C327			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C328			CC45FCH1H220J	CERAMIC	22PF	J		
C329-331			CC45FSL1H101J	CERAMIC	100PF	J		
C332			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C334		*	CC45FSH1H820J	CERAMIC	82PF	J		
C335			CC93FCH1H391J	CERAMIC	390PF	J		
C336,337			CF92FV1H273J	MF	0.027UF	J		
C338,339			CF92FV1H153J	MF	0.015UF	J		
C340			CE04KW1H3R3M	ELECTRO	3.3UF	50WV		
C341-343			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		

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C344			CK45FB1H471K	CERAMIC 470PF K		
C345			CF92FV1H473J	MF 0.047UF J		
C346			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C348			CE04KW1V100M	ELECTRO 10UF 35WV		
C349			CE04KW1C101M	ELECTRO 100UF 16WV		
C352,353			CC45FSL1H151J	CERAMIC 150PF J		
E2	2G		E20-0476-05	LOCK TERMINAL BOARD(ANTENNA)		
CF1 ,2			L72-0531-05	CERAMIC FILTER		
CF4			L72-0096-05	CERAMIC FILTER		
L1 ,2			L79-0720-05	LC FILTER		
L3 ,4			L39-0126-05	TRAP COIL		
L5 ,6			L39-0106-05	TRAP COIL		
L7 ,8			L39-0171-05	TRAP COIL		
L9			L32-0356-05	BIAS OSCILATING COIL		
L11			L40-1091-17	SMALL FIXED INDUCTOR		
L13			L40-1091-17	SMALL FIXED INDUCTOR		
L18			L30-0454-15	AM IFT		
L19			L30-0439-15	FM IFT		
L20			L39-0189-05	COMBINATION COIL		
X1			L78-0209-05	RESONATOR (4.194MHZ)		
X1			L78-0218-05	RESONATOR		
X2			L77-1122-05	CRYSTAL RESONATOR		
D			N89-3008-46	BINDING HEAD TAPTITE SCREW		
CP1			R90-0809-05	MULTIPLE RESISTOR		
CP2			R90-0810-05	MULTIPLE RESISTOR		
CP3			R90-0805-05	MULTI-COMP 10KX8 J 1/4W		
R55 ,56			RS14KB3D470J	FL-PROOF RS 47 J 2W		
R314			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R322,323			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R324			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R353			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
VR1 -4			R12-3128-05	TRIMMING POT. (22K)		
VR5 ,6			R12-5071-05	TRIMMING POT. (220K)		
VR7 ,8			R12-3126-05	TRIMMING POT. (10K)		
VR9 -12			R12-3128-05	TRIMMING POT. (22K)		
VR14			R12-3130-05	TRIMMING POT. (33K)		
VR15			R12-1089-05	TRIMMING POT. (4.7K)		
K1	2G		S51-2089-05	MAGNETIC RELAY(HEAD SW)		
S1 ,2	2G		S31-2094-05	SLIDE SWITCH(BEATCANCEL)		
D1			1SS199	DIODE		
D2			HZS4.7N(B)	ZENER DIODE		
D2			RD4.7ES(B)	ZENER DIODE		
D3			HZS5.1N(B2)	ZENER DIODE		
D3			RD5.1ES(B2)	ZENER DIODE		
D4			HZS8.2S(B2)	ZENER DIODE		
D4			RD8.2JS(B2)	ZENER DIODE		
D5			HZS6.2N(B2)	ZENER DIODE		
D5			RD6.2ES(B2)	ZENER DIODE		
D6 -49			HSS104	DIODE		
D6 -49			1SS133	DIODE		
D301,302			HSS104	DIODE		
D301,302			1SS133	DIODE		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti-nation 仕向	Re-marks 備考
C344			CK45FB1H471K	CERAMIC 470PF K		
C345			CF92FV1H473J	MF 0.047UF J		
C346			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C348			CE04KW1V100M	ELECTRO 10UF 35WV		
C349			CE04KW1C101M	ELECTRO 100UF 16WV		
C352,353			CC45FSL1H151J	CERAMIC 150PF J		
E2	2G		E20-0476-05	LOCK TERMINAL BOARD(ANTENNA)		
CF1 ,2			L72-0531-05	CERAMIC FILTER		
CF4			L72-0096-05	CERAMIC FILTER		
L1 ,2			L79-0720-05	LC FILTER		
L3 ,4			L39-0126-05	TRAP COIL		
L5 ,6			L39-0106-05	TRAP COIL		
L7 ,8			L39-0171-05	TRAP COIL		
L9			L32-0356-05	BIAS OSCILATING COIL		
L11			L40-1091-17	SMALL FIXED INDUCTOR		
L13			L40-1091-17	SMALL FIXED INDUCTOR		
L18			L30-0454-15	AM IFT		
L19			L30-0439-15	FM IFT		
L20			L39-0189-05	COMBINATION COIL		
X1			L78-0209-05	RESONATOR (4.194MHZ)		
X1			L78-0218-05	RESONATOR		
X2			L77-1122-05	CRYSTAL RESONATOR		
D			N89-3008-46	BINDING HEAD TAPTITE SCREW		
CP1			R90-0809-05	MULTIPLE RESISTOR		
CP2			R90-0810-05	MULTIPLE RESISTOR		
CP3			R90-0805-05	MULTI-COMP 10KX8 J 1/4W		
R55 ,56			RS14KB3D470J	FL-PROOF RS 47 J 2W		
R314			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R322,323			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R324			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R353			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
VR1 -4			R12-3128-05	TRIMMING POT. (22K)		
VR5 ,6			R12-5071-05	TRIMMING POT. (220K)		
VR7 ,8			R12-3126-05	TRIMMING POT. (10K)		
VR9 -12			R12-3128-05	TRIMMING POT. (22K)		
VR14			R12-3130-05	TRIMMING POT. (33K)		
VR15			R12-1089-05	TRIMMING POT. (4.7K)		
K1	2G		S51-2089-05	MAGNETIC RELAY(HEAD SW)		
S1 ,2	2G		S31-2094-05	SLIDE SWITCH(BEATCANCEL)		
D1			1SS199	DIODE		
D2			HZS4.7N(B)	ZENER DIODE		
D2			RD4.7ES(B)	ZENER DIODE		
D3			HZS5.1N(B2)	ZENER DIODE		
D3			RD5.1ES(B2)	ZENER DIODE		
D4			HZS8.2S(B2)	ZENER DIODE		
D4			RD8.2JS(B2)	ZENER DIODE		
D5			HZS6.2N(B2)	ZENER DIODE		
D5			RD6.2ES(B2)	ZENER DIODE		
D6 -49			HSS104	DIODE		
D6 -49			1SS133	DIODE		
D301,302			HSS104	DIODE		
D301,302			1SS133	DIODE		

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D303			HZS5.1N(B2).	ZENER DIODE		
D303			RD5.1ES(B2)	ZENER DIODE		
D304-306			HSS104	DIODE		
D304-306			1SS133	DIODE		
D307			HZS3.3N(B2)	ZENER DIODE		
D307			RD3.3ES(B2)	ZENER DIODE		
IC1			UPD75112CW-031	IC(MICROPROCESSOR)		
IC2			CXA1115BP	IC(PLAY/BACK AMP)		
IC3 ,4			TD62554S	IC(4CH TRANSISTOR ARRAY)		
IC5			M51951ASL	IC(SYSTEM RESET)		
IC5			PST529D	IC(SYSTEM RESET)		
IC6			CXA1198AP	IC(CASSETTE DECK REC EQUALIZER		
IC7			NJM4558D	IC(OP AMP X2)		
IC7			NJM4565D	IC(OP AMP X2)		
IC8 ,9			NJM4558D-A	IC(OP AMP X2)		
IC8 ,9			NJM4565D-D	IC(OP AMP X2)		
IC10			TC9213P	IC(2CH ELECTRONIC VOLUME)		
IC11			HA12088ANT	IC(DOLBY B/C NOISE REDUCTION)		
IC12			LA1265	IC(FM/AM TUNER)		
IC13			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC14			AN7470	IC(FM MPX)		
Q1 -3			2SD863(E,F)	TRANSISTOR		
Q4			2SA992(F,E)	TRANSISTOR		
Q5 ,6			2SC1845(F,E)	TRANSISTOR		
Q7 ,8			2SC3246	TRANSISTOR		
Q9 ,10			2SD1302(S,T)	TRANSISTOR		
Q11 -14			2SA733(A)(Q,P)	TRANSISTOR		
Q11 -14			2SA933S(Q,R)	TRANSISTOR		
Q15 -24			2SC1740S(Q,R)	TRANSISTOR		
Q15 -24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 -29			DTA124EN	DIGITAL TRANSISTOR		
Q30 -68			DTC124EN	DIGITAL TRANSISTOR		
Q301			2SC1923(R,O)	TRANSISTOR		
Q302			2SC1740S(Q,R)	TRANSISTOR		
Q302			2SC945(A)(Q,P)	TRANSISTOR		
Q303			2SC1845(F,E)	TRANSISTOR		
Q305,306			2SC1740S(Q,R)	TRANSISTOR		
Q305,306			2SC945(A)(Q,P)	TRANSISTOR		
Q307,308			2SA733(A)(Q,P)	TRANSISTOR		
Q307,308			2SA933S(Q,R)	TRANSISTOR		
Q309,310			2SD1302(S,T)	TRANSISTOR		
Q311			2SA733(A)(Q,P)	TRANSISTOR		
Q311			2SA933S(Q,R)	TRANSISTOR		
DT1	2G		W02-0699-05	FM FRONT-END ASSY		
Mechanism Ass'y (D40-0877-05): A MECHA (D40-878-05): B MECHA						
1	1C		D01-0119-08	FLY WHEEL ASSY		
2	2A		D03-0231-08	REEL DISK ASSY		
3	2B		D03-0232-08	REEL DISK ASSY		
4	1C		D01-0118-08	FLY WHEEL ASSY		
5	2A		D10-2057-08	TENSION ARM		A
5	2A		D10-2226-08	TENSION ARM		B
6	2A		D10-2339-08	SLIDER		
7	1C		D10-2334-08	SLIDER		
8	1A,2B		D10-2335-08	LEVER (REC,CrO2)		

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9	2B		D10-2336-08	LEVER (PACK)		
10	1C		D10-2338-08	PLAY ARM		
12	2C		D10-2371-08	EJECT LEVER ASSY		A
12	1A		D10-2373-08	EJECT LEVER ASSY		B
15	1B		D10-2340-08	ROD		
16	2B		D10-2341-08	ROD		
17	1B		D10-2342-08	LEVER (METAL)		B
18	1C		D13-0812-08	GEAR		
19	2B		D14-0311-08	PINCH ROLLER ASSY		
20	2A		D14-0312-08	PINCH ROLLER ASSY		
21	2B		D14-0304-08	IDLER ASSY		
22	1C		D16-0287-08	BELT		
29	2B	*	E31-7495-08	CONNECTING WIRE		A
29	2B	*	E31-7497-08	CONNECTING WIRE		B
30	1B		G02-0947-08	FLAT SPRING		A
31	2A		G01-2398-08	TENSION SP		
32	2B		G01-2422-08	TENSION SP		B
32	2B		G01-2439-08	TENSION SP		A
33	2C		G01-2400-08	TORSION SP		
34	1B	*	J25-6369-08	PRINTED WIRING BOARD		A
34	1B	*	J25-6371-08	PRINTED WIRING BOARD		B
35	2B		J19-3253-08	READ HOLDER		
36	2B		N19-1214-08	FLAT WASHER (2.6X 0.5)		
37	1A		J19-3203-08	HEAD SPASER		A
40	2A		N19-0904-08	FLAT WASHER (1.7X 0.25)		
41	1C		N19-0905-08	FLAT WASHER (2.6X 0.25)		
42	2A,2B		N19-1095-08	FLAT WASHER (2.1X 0.25)		
43	2B		N29-0205-04	E TYPE RETAINING RING		
46	2A		T31-0056-08	REC/PB/ERASE HEAD		A
46	2A		T39-0010-08	REC/PB/ERASE HEAD		B
50	2A		N09-2585-08	SCREW (M2X 5)		
51	2A		N09-2730-08	SCREW (M2X 9)		
52	2B		N09-2701-08	SCREW (3X 8)		
53	2B		N09-2729-08	SCREW (M2.6X 6)		
54	2A		N09-1864-08	SCREW		
55	1B		N09-2700-08	SCREW (M2.6X 5)		
65	1B		T94-0216-08	SOLENOID		
S1 -S5	1B		S90-0105-08	PUSH SWITCH		
M1	1C		T42-0535-08	DC MOTOR ASSY (MAIN)		
M2	1B		T42-0534-08	DC MOTOR ASSY (REEL)		
PH1	1B		GP2S04B	PHOTO SENSOR		
PH1	1B		SPI-335-34	PHOTO SENSOR		

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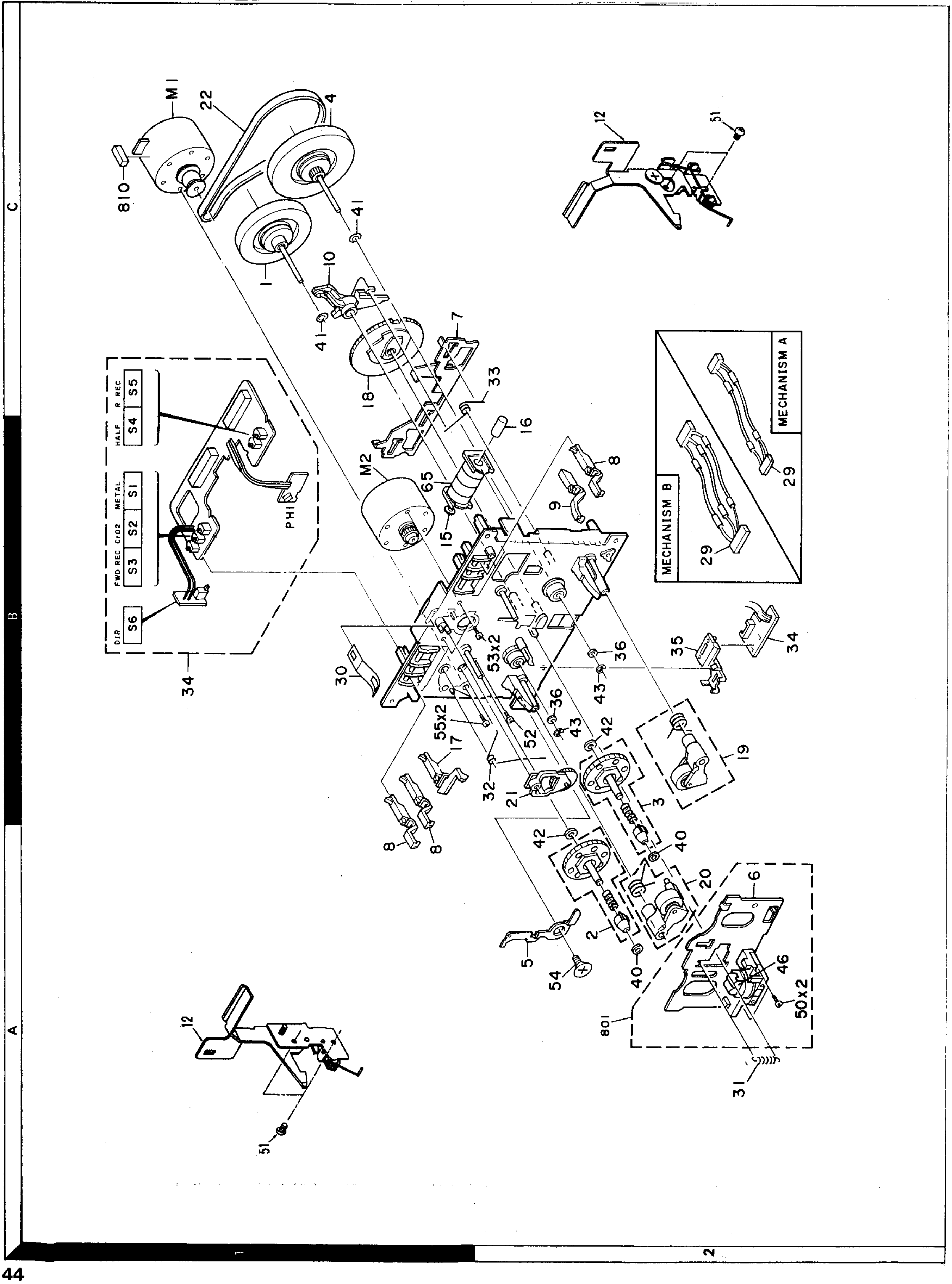
RX-53

EXPLODED VIEW (MECHANISM)



M1
22
4
810
41
1
10
41
18
7
33
16
8
9
M2
65
15
PH1
DIR S6
FWD REC S3
CrO2 S2
METAL S1
HALF S4
R REC S5
34
30
53x2
36
43
35
34
55x2
52
36
43
42
17
32
21
3
19
8
8
42
40
20
6
2
5
54
40
46
50x2
801
31
12
51
12
51
MECHANISM B
29
MECHANISM A
29
A
B
C
1
2

Parts with the exploded numbers larger than 700 are not supplied.

SPECIFICATIONS

Audio Section

Continuous Power output
(Front)
From 40 Hz to 20 kHz,
0.09% T.H.D. at 6 Ω ...... 50 W + 50 W
Maximum Useful power
output (EIAJ at 6 Ω) ...... 70 W + 70 W
(Rear)
Maximum Useful power
output (EIAJ at 8 Ω) ...... 10 W + 10 W
Total Harmonic Distortion
at rated power 0.09%
Signal to noise ratio
PHONO (MM) .... 76 dB
CD, TUNER, AUX,
TAPE .... 94 dB
Input Sensitivity/Impedance
PHONO (MM) .... 2.5 mV/47 kΩ
CD, TUNER, AUX,
TAPE .... 150 mV/47 kΩ
Frequency Response
(20 Hz to 40,000 Hz) ... +1 dB, −3 dB
Graphic equalizer controls
60 Hz, 150 Hz, 400 Hz,
1 kHz, 2.4 kHz, 6 kHz,
15 kHz .... ±12 dB
Output level/Impedance
TAPE REC .... 150 mV/3.3 kΩ

FM tuner section

Tuning frequency range .. 87.5 MHz − 108 MHz.
Usable sensitivity
(IHF at 75 Ω) .... 3.7 μV/16.3 dBf
Total harmonic distortion (at 1 kHz 65 dBf input)
MONO 0.2%
STEREO 0.22%
Signal to noise ratio (at 1 kHz, 65 dBf input)
MONO .... 78 dB
STEREO .... 69 dB
Stereo separation
(at 1 kHz) .... 40 dB
Alternate channel selectivity
(±400 kHz) .... 56 dB
Frequency response
(30 Hz − 15 kHz) .... +0.5 dB, −0.5 dB

AM Tuner Section

Tuning frequency range
531 kHz − 1,602 kHz ... 9 kHz step
530 kHz − 1,610 kHz ... 10 kHz step
Usable sensitivity .... 14 μV (500 μV/m)
Signal to noise ratio (at
30% mod. 1 mV input) ..... 49 dB

Cassette Deck Section

Type .... 4 track 2 channel stereo
Heads
Playback/Record Head
(B deck) 1
Playback Head
(A deck) 1
Erasing Head
(B deck) 1
Motors .... 2 (each deck)
First Winding Time
(A Deck) .... Approx. 90 seconds with C-60 tape
Frequency Response (B deck)
Normal Tape .... 30 Hz to 16,000 Hz ±3 dB
CrO$_2$ Tape .... 30 Hz to 17,000 Hz ±3 dB
Metal Tape .... 30 Hz to 17,000 Hz ±3 dB
Signal to Noise Ratio
Dolby C NR ON .... 75 dB (Metal tape)
Dolby B NR ON .... 67 dB (Metal tape)
Dolby NR OFF .... 58 dB (Metal tape)
Harmonic Distortion .... Less than 1%
(at 1 kHz, 0 dB, 3 rd H.D. Metal/Normal tape)
Wow and Flutter .... 0.08% (W.R.M.S.)
±0.18% (DIN)

General

Power Consumption .... 150 W
Dimension .... W: 360 mm
H: 394 mm
D: 367 mm
Weight (Net) .... 12.5 kg

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ◻◻ are trademarks of Dolby Laboratories Licensing Corporation.

Note:
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

RX-53

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